

Exhibit H

Exhibit H

Confidential

Memorandum of Telephonic Communication

Date: 5/26/2011 Attorney/Analyst: EEK, JP2, JS2

File No.: 2011-1805

Other Party: (b)(7)(C) Race: (b)

Tel. No.: (b)(7)(C)

Title/Organization: (b)(7)(C)

Jurisdiction: State of Virginia

Subject: Chapter 1 (H.B. 5005) (2011)

(b)(7)(C) (b)(7)(C)  
two major concerns.  
(1) (b) wanted to make sure that the thirteen members of the Black Caucus were safe. (2) (b) had concerns for the overall Democratic Party.

The Republicans are in power, but because everyone knew the Department of Justice would be reviewing the plans, (b) believes the plan is as fair as possible. (b) believed the process was fair because those in power reached out to the Democrats to find out their needs.

(b)(7)(C) a House of Delegates with 100% Democrats, but that is not the state of things. But given the circumstances, it was fair.

(b)(7) feels that the thirteen districts currently represented by black delegates are safe under the proposed plan. With respect to the non-minority districts represented by black delegates, (b)(7)(C) believes their districts are safe. (b)(7)(C) district is safe because the it is heavily Democratic, and the Republicans cannot take it back. Under the proposed plan, (b)(7)(C) will also be safe because the district is a Democratic district. (b)(7)(C)

(b)(7)(C) members of the Black Caucus were "tickled pink" with the proposed plan. (b)(7)(C)

(b)(7)(C) later (b)(7)(C) were not satisfied.

(b)(7)(C) (b)(7)(C)  
Although the minority numbers in Delegate Tyler's district decrease without the prison population, her district is safer because it is also heavily democratic. There is a concern

that a white Democrat will take the seat, but (b)(7)(C) feels that a black candidate will be able to hold the seat.

(b)(7)(C) is unhappy because (b)(7)(C) wanted (b)(7)(C). (b)(7)(C) described it as a "turf war."

There are two minority districts whose seats are filled by white delegates, (b)(7)(C) a district with approximately 60% bpop. (b)(7)(C) a district with approximately 65% bpop.

There have been several elections in those two districts, Districts 69 and 74, in which the minority vote was split among several minority candidates. However, (b)(7)(C) both delegates do a good job representing their minority districts, and they have the support of the minority constituents.

(b)(7)(C) raised the 13<sup>th</sup> minority district issue. (b)(7)(C) Districts 69 and 74 demonstrate that creating a black seat does not mean a black candidate will be elected to office.

(b)(7)(C) did not set a target BVAP number. The 55% is not an important number to (b)(7)(C) can win with 40%.

(b)(7)(C) does not think the minority districts are packed too tightly. (b)(7)(C) thinks they are just right. (b)(7)(C) does not have any concerns about a discriminatory purpose in drawing the district lines. If there was such a concern, (b)(7)(C) would have addressed it.

The public involvement and input in the redistricting process was an improvement from previous years. There were town meetings all over the state. (b)(7)(C) concerned about having "black input," and (b)(7)(C) was satisfied with the level of input received.

(b)(7)(C) is satisfied with the plan and believes it to be a good plan.

Exhibit I

Exhibit I

## NewsRoom

4/28/11 Free Lance-Star (KRTBN) (VA) (Pg. Unavail. Online)  
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April 28, 2011

Senators close to deal on redistricting plan

Chelyen Davis

The Free Lance-Star, Fredericksburg, Va.

April 28--RICHMOND -- State senators hope they've reached a redistricting deal, and may vote on it today.

A small group of senators from both parties have been working since Monday evening to craft a new map of Senate districts that can please both Democrats and Republicans.

Under the latest proposal -- which still must be approved by the Republican caucus -- Virginia Beach would lose a Senate seat and the Lynchburg area would gain one. Democrats have signed off on the proposal, Democratic senators said.

Also under the plan, fewer localities are split, and Prince William County -- which had been put into about six different districts -- now will be in fewer districts, senators said.

Senators were sent back to the drawing board earlier this month by Gov. Bob McDonnell, who vetoed the first redistricting bill that covered both Senate and House districts.

McDonnell blamed Senate Democrats for the veto, saying they'd crafted a plan that split too many localities, created districts that weren't compact, and had not managed to get any Republican support.

Senate Democrats first balked at making changes, threatening to send McDonnell the same bill again.

But they quickly realized "it was unrealistic to do that," said Sen. Dick Saslaw, D-Fairfax, who'd threatened not to change even a comma.

Legislators came back to Richmond on Monday to start working on a new bill. About eight or nine senators, from both parties, met privately Monday night, Tuesday and yesterday to try to craft a compromise that senators from both parties could vote for.

By yesterday evening, Republican senators were reluctant to declare a deal. Sen. John Watkins, R-Powhatan, said there wasn't a deal until his caucus signed off on it, but he did say the group of senators had "something for them to look at."

Democratic senators said their caucus approved, and described a handshake deal pending Republican approval.

Saslaw said both sides had to make concessions, but he thinks they have the framework for a bill the governor can sign.

"Each side wanted more and we had to settle halfway," Saslaw said. "They gave up some and we gave up some. Both sides did OK."

The Senate planned as of last night to meet again today, hopefully with a bill to vote on.

Meanwhile, the House of Delegates approved its redone redistricting bill -- which is tweaked only slightly from the original bill -- on an 80-9 vote yesterday.

McDonnell had praised the House for the bipartisan vote by which it originally approved its new maps.

Some Democrats addressed that in House floor speeches.

Del. **Jeion Ward**, D-Hampton, said she was ashamed of having voted for the original redistricting bill, a vote she said she made only because it benefited her district, even though it harmed other Democratic delegates.

"It was the hardest vote I've ever taken when I voted yes, because I knew what I was doing was for myself," Ward said. "The lines were drawn so it would be easier for me to get re-elected, and I just did not think about anyone else. All I thought about was: Is this going to be good for me?"

Del. Jennifer McClellan, D-Richmond, said she voted for the plan because it was good for her district, and that was all she could have impact on.

"I had a choice. I could rail against the process, and rail against those in charge, or I could try to have some influence to take care of the concerns of the people I represent," McClellan said. "I was sent here to represent them, to look after their interests, not my own."

Del. Onzlee Ware, D-Roanoke, said he had nothing to apologize for.

"Why I should be upset about the fact that I have a good district?" Ware asked. "I'm not ashamed to take a vote for what I believe is the right thing for my people. Let's not get so sanctimonious and try to presume we know how other people feel and how other people think."

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**---- Index References ----**

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**NewsRoom**

Exhibit J

Exhibit J



## **DEFENDANT-INTERVENOR TX 026**

Exhibit produced by Intevenors  
in electronic form only

Defendant-Intervenor Exhibit List Description:  
1991 Commonwealth of Virginia Preclearance  
Submission

Electronic file copied onto disc for Court's review  
File titled: DEFENDANT-INTERVENORS TX 026.zip

Exhibit K

Exhibit K

## **DEFENDANT-INTERVENOR TX 027**

Exhibit produced by Intevenors  
in electronic form only

Defendant-Intervenor Exhibit List Description:  
2001 Commonwealth of Virginia Preclearance  
Submission

Electronic file copied onto disc for Court's review

File titled: DEFENDANT-INTERVENORS TX 027 - Part 1 of 3.zip

File titled: DEFENDANT-INTERVENORS TX 027 - Part 2 of 3.zip

File titled: DEFENDANT-INTERVENORS TX 027 - Part 3 of 3.zip

Exhibit L

Exhibit L

An Evaluation of the Geographic Compactness and Contiguity of  
Virginia's 2001 House of Delegates and Senate Districts

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INTRODUCTION

I am a Professor of Geography at the University of Alabama, Tuscaloosa, Alabama, where I serve as departmental Chair. I first joined the department in 1989. My formal education includes a BA (1975) in political science from the University of Colorado-Denver, a MS (1980) in geography from Western Washington University, and a Ph.D. (1984) in geography from the University of Kentucky. My primary research and teaching emphases are in political geography on topics ranging from the local to international scales. I have authored or co-authored in excess of 70 publications including over 40 appearing in refereed journal outlets on varied topics including districting. Between 1995 and 1997 I served as Chair of the Political Geography Specialty Group, Association of American Geographers, the largest organization of political geographers in the world. My Vitae accompanies this analysis. A list of court cases for which I have provided testimony is included at the rear of this report.

PURPOSE

The purpose of this report is to evaluate Virginia's 100 state House of Delegates and

40 state Senate districts as delineated in the Enrolled Plans for either chamber in terms of their compliance with the geographic compactness and contiguity criteria. For the purposes of this analysis computer files delineating each district's geographic shape and census geography were downloaded from the Virginia Division of Legislative Services' website by the staff of the University of Alabama Cartographic Research Laboratory. These files included data on the "Enrolled Plan," "Robinson Plan," and "1990s Plan," for the House of Delegates, and for all state Senate districts in the "Enrolled Plan," the "Miller Plan," and the "1990s Plan." Multiple minor errors were identified in all six plans downloaded. These generally involved the misallocation of small blocks. These were corrected with information provided by Mr. Kent Stigall of the state's Legislative Services Section. Additionally, Caliper's Corporation's Virginia data set for use with its "Maptitude for Redistricting" software was purchased. These data were used to calculate the final compactness measures for the districts in all six plans reviewed. These data were also used to test the contiguity of all six plans.

The additional compactness measures for the legislative districts in other states are drawn from the author's files pertaining to other cases or research projects. Compactness measures for the shapes of other jurisdictional entities are included for instructional and comparative purposes. These measures were calculated by the University of Alabama Cartographic Research Laboratory using the Bureau of the Census' TIGER Files.

This report is broken into multiple segments. The first segment below provides a brief summary of the report's findings. The second reviews districting criteria in general, highlighting that the process of delineating districts is oftentimes one of balancing competing and conflicting goals. The third portion of the report reviews the compactness districting

criterion. The fourth segment of the report considers the compactness of Virginia's House of Delegates districts as delineated in the Enrolled Plan, Robinson Plan, and the 1990s Plan. This evaluation also includes a comparison of the geographic compactness of Virginia's 2001 House of Delegates districts as defined in the Enrolled Plan with those in other states. The fifth section of the report examines the compactness of Virginia's state Senate districts as delineated in the Enrolled Plan, Miller Plan, and 1990s Plan. This evaluation also includes a comparison of the Enrolled Plan's Senate districts with those in other states. The sixth section of this report examines the contiguity of the districts in all six plans. The final section of this report reviews my conclusions.

#### (1) SUMMARY OF OPINIONS

This report finds the 100 House of Delegates districts as delineated in the Enrolled Plan to be sufficiently compact. The Enrolled Plan improves the level of district compactness over the 1990s Plan. The mean level of compactness of the districts defined in the Enrolled Plan also compares favorably with the districts in other Southern states in the 1990s.

This report further finds the 40 state Senate districts as delineated in the Enrolled Plan to be sufficiently compact. The Senate Enrolled Plan equals or exceeds the level of compactness in the 1990s Plan. The Enrolled Senate Plan also compares adequately with other Southern Senates on the measures of compactness calculated.

Finally, this report finds that both the House and Senate Enrolled plans delineated contiguous districts.

(2) DISTRICTING CRITERIA

Districting plans may be evaluated from the perspective of a number of goals or criteria including population equality, racial equity, geographic compactness, incumbent protection and limiting the division of local government subdivisions, among others (see for example, Morrill 1981, 1982, 1987, 1994; Dixon 1982; Grofman 1985, 1993; Grofman et al., 1992; Butler and Cain 1992). While the equality of population and racial equity criteria emanate from the United States Constitution, all other criteria have had either historically variable or no legal mandate (Morrill 1981; Grofman 1985). For example, while federal law required that congressional districts be compact from 1901 to 1929, no such federal statutory mandates exist at present (O'Rourke 1997: 62).

Several states have varying requirements about the geographic design of legislative districts including Virginia (Grofman 1985: 177-183). Article II of Section 6 of the Constitution of Virginia states that

Members . . . of the Senate and of the House of Delegates of the General Assembly shall be elected from electoral districts established by the General Assembly. Every electoral district shall be composed of contiguous and compact territory and shall be so constituted as to give, as nearly practicable, representation in proportion to the population of the district.

As is the circumstance with most such provisions in state constitutions, the Constitution of Virginia provides little guidance for the interpretation of this requirement as it relates to compactness. But in *Jamerson v. Womack* (1992: 508), a decision pertaining to Virginia's 1990s state legislative districts, the court stated that

While the Districts are not ideal in terms of compactness, proper deference must be given to the wide discretion accorded to the General Assembly in the value of the relative degree of compactness



required when reconciling the multiple concerns of apportionment . . . .

We may therefore conclude that the Virginia 1990s districts were judged constitutionally acceptable and that the General Assembly has significant discretion in meeting this constitutional obligation. Additionally, we might conclude that at minimum, if the levels of compactness of post-*Jamerson* Virginia State Assembly plans are equal to or above the levels existing in the plans litigated in the 1990s, subsequent plans have met or exceeded the General Assembly's obligation to delineate geographically compact districts.

It is important to state that real-world circumstances limit the degree to which multiple districting goals can be simultaneously achieved (Morrill 1987; Butler and Cain 1992). As a practical matter those delineating districts face the task of balancing multiple and oftentimes contradictory goals including those mandated by the Voting Rights Act and implicit in the Equal Protection Clause (see Justice O'Connor's concurring statement in *Vera v. Bush* 1996; Webster 1997). In such decisions the primary constitutional necessities of achieving population equality and racial equity must receive preeminent emphasis. At times this emphasis may lead to lesser levels of success in meeting secondary or subsidiary districting goals. Thus, to comply with the equal population criterion the geographic compactness of a district in an area with a spatially discontinuous or geographically dispersed population may be of a lesser objective level than a district delineated around an evenly distributed population. Likewise, to achieve compliance with the increasingly stringent one-person-one vote mandate, those delineating districts may be required to subdivide counties and other local government units (Butler and Cain 1992: 84).

In other cases efforts to comply with the Voting Rights Act's Section 2 prohibition

against vote dilution may also lead districters to draw district lines which do not maximize compliance with subsidiary districting goals including, among others, compactness and limiting the subdivision of local government units. In such circumstances the Supreme Court's three-pronged test for vote dilution as contained in their 1986 *Gingles* decision provides guidance. As stated in the opinion (pp. 50-51):

First, the minority must be . . . sufficiently large and geographically compact to constitute a majority of a single-member district . . . . Second, the minority group must be . . . politically cohesive . . . . Third, . . . the white majority votes sufficiently as a bloc to enable it . . . usually to defeat the minority's preferred candidate.

If evidence for all three prongs is established, the creation of a majority-minority district is warranted if not mandated. Under such conditions, deviations from the stringent application of traditional districting criteria such as compactness and population equality may be appropriate and/or necessary. Such an emphasis does not void the necessity of paying heed to other criteria including geographic contiguity, compactness or communities of interest, but rather may provide the basis for justifying deviations (Grofman et al., 1992: 61-81).

At times, even in the absence of a racially diverse population, the delineation of representational units may benefit from a relaxation of stringent adherence to some subsidiary districting criteria. For example, the boundaries of local government units (e.g., counties, municipalities) are historical features and may encircle multiple and highly contrasting communities of interest within their areal extents. This being so, map makers may view as positive the conscious subdivision of some local governments in an effort to provide

representation to contrasting economic or demographic groups. For example, providing different units of representation for an inner city area and its surrounding suburbs allows the opinions of potentially very different populations to be better represented. Alternatively, including an agglomeration of lower income neighborhoods in a single district may facilitate their political participation to a greater degree than the submersion of these neighborhoods into districts dominated by upper income suburbs. Such conscious divisions can provide more equitable access by varied populations to the political system, and are therefore valuable to protect and improve the integrity of democratic processes.

Subsidiary districting goals also frequently conflict with one another. In these circumstances judgments about which criteria to emphasize must be made. Butler and Cain (1992: 86), for example, write that "Since compactness is rarely a consideration in [municipal] annexation proceedings, districts that follow city lines will also be non-compact." Thus, if compactness is emphasized in the delineation of districts, municipal boundaries may be crossed by the boundaries of representational units. Local jurisdictional boundaries may also be crossed as a result of the constitutionally mandated racial equity criterion. As stated by Butler and Cain (1992: 87), "A districting plan that dilutes minority voting strength by refusing to cross city or county boundaries may be in violation of the VRA." This point is also made by Richard Morrill (1987: 248), and Bruce Cain (1984: 71).

As noted above, the boundaries of local government units may encircle widely contrasting demographic groups in terms of economic pursuits, social interactions, and political outlooks. Effective elected representation may become increasingly difficult if widely diverse demographic groups are geographically lumped in the same district. Equitable and effective representation may therefore be improved by subdividing diverse

populations within the same local government unit. Hence, an emphasis upon creating comparatively homogeneous districts may lead to the subdivision of local government units if not lesser degrees of objective geographic compactness. Again, this is not to suggest that any particular criterion should be entirely neglected. Rather all districting decisions are the result of balancing the goals of competing if not contradictory criteria.

### (3) GEOGRAPHIC COMPACTNESS CRITERION

Unlike the equality of population criterion, the geographic compactness criterion has no current foundation in the U.S. Constitution (Niemi et al., 1990; Pildes and Niemi 1993: 527-529). In spite of its limited current constitutional mandate, district compactness has long been viewed as a criterion for evaluating districting plans. It is further a central element in the first prong of the *Gingles* test for minority vote dilution. District compactness is also included as a goal for legislative districts in approximately half of all state constitutions though almost exclusively in qualitative or general terms (Pildes and Niemi 1993: 529-530). As noted above, the state of Virginia is among those states requiring that the members of legislative bodies be elected from compact districts (Grofman 1985: 177).

Given recent Supreme Court decisions largely pertaining to congressional districts in North Carolina, Georgia and Texas, the compactness criterion has received renewed attention in the legal and academic literature (e.g., Grofman 1993; Horn et al., 1993; Pildes and Niemi 1993). Of central importance in the elevation of district compactness as a districting goal is the Court's decision in *Shaw v. Reno* (1993) which "isolates district appearance and turns it into a threshold factor for setting strict scrutiny into motion" (Pildes and Niemi 1993: 539). Thus while irregularly shaped districts are not illegal or unconstitutional in and of

themselves, they may provide one basis for triggering judicial investigations into the processes which created the districts.

There is substantial legal and academic disagreement over the value of mandating districts be compact (Dixon 1968: 458, 522-534; Taylor and Johnson 1979; Niemi et al., 1990). As stated by prominent political geographer Richard Morrill (1981: 22), "A too simplistic application of such geometric compactness measures is foolish . . . ." First, requiring compact districts does not necessarily guard against the political or racial manipulation of electoral space. The geographic resolution and quality of the population data now provided by the census in conjunction with the increasing sophistication of computer technology, may allow comparatively compact districts to be delineated which are intended as discriminatory. Thus, while irregularly shaped districts may suggest manipulation, highly compact districts may also be intentionally detrimental to a population group (see Morrill 1981; Grofman 1985; Niemi et al., 1990).

Second, in the real-world, perfectly compact districts are an impossibility. Most compactness measures assume that an optimal district will be a perfect circle, the most compact of geometric shapes (e.g., Reock 1961). But if circles were employed to subdivide the space of a jurisdiction some of the jurisdiction's area would not be allocated to districts, but be left in the gaps between circles. Thus, circular districts are an unrealistic abstraction with limited application to real-world circumstances.

Third, the building blocks of redistricting plans, blocks, block groups, tracts, or election precincts, are frequently delineated by streets or natural features which result in non-compact shapes. As stated by one observer, attempting to construct compact districts from non-compact building blocks such as counties or census tracts is "a lot like trying to build a

level wall out of a pile of different sized rocks" (as quoted in Orr 1970: 72). The spatial design of these building blocks therefore precludes circular districts from being formed.

At the opposite geographic scale, the boundaries of the political subdivisions being districted (e.g., a state, county or municipality) also circumscribe the level of potential district compactness. Districts which follow irregular state or county boundary segments such as meandering rivers or embayed coastlines may be of relatively low objective or statistical compactness. Thus, comparisons of districts between states or between geographically differentiated areas in the same state must be made with caution and attention to local circumstances.

Fifth, satisfactorily meeting other criteria such as the population equality criterion may limit the level of district compactness. It is of substantially greater legal necessity to comply with the equal population criterion than to create highly compact districts. To reiterate, the districting process is one of balancing goals which frequently conflict with one another.

Sixth, it should be made clear that compactness is not an absolute but rather a comparative quality of a districting plan since not even a theoretical districting plan can be entirely composed of perfectly circular districts. We cannot therefore easily conclude that one plan is composed of compact districts while another is not. Minimal differences between the levels of compactness in one plan versus another should not be employed to claim one plan is superior to the other. As stated by Pildes and Niemi (1993: 563, note 223),

Just as there is no bright line between compact and noncompact districts, there is no one number that determines whether the difference between compactness scores is significant. Clearly, a small difference - for example, .01 - is not meaningful . . . .

Finally, there exists a host of different measures by which district compactness may be measured (Niemi et al., 1990). The methods of calculating compactness used here are drawn from a 1993 Michigan Law Review article by Richard Pildes (Professor of Law, University of Michigan) and Richard Niemi (Professor of Political Science, University of Rochester). Both authors are recognized authorities on redistricting and the courts in the United States. The purpose of their article was to measure the compactness of the congressional districts existing in 1993 in such a manner as to parallel the discussion in the Supreme Court's decision in *Shaw v. Reno* (1993). Adding to the relevance of this article and its methods was its citation in *Bush v. Vera* (1996) as supporting evidence for the Supreme Court's findings that three congressional districts in Texas were unconstitutional.

The two measures of compactness employed in this report, both recommended by Pildes and Niemi (1993), were calculated for all 100 Virginia House of Delegates districts in the "Enrolled," "Robinson," and "1990s Plans, and for all 40 state Senate districts in the "Enrolled," "Miller," and "1990s Plans." The first measure is based on the geographic "dispersion" of the district. Conceptually this measure evaluates the level of spatial concentration of a district's geographic extent. To calculate this measure the smallest possible circle is circumscribed around a district. The reported coefficient is the proportion of the area of the circumscribed circle which is also included in the district and ranges from 1.0 (most compact) to 0.0 (least compact). To avoid confusion, it is important to note that the geographic dispersion compactness measure is sometimes referred to as the "Reock Test" or "Reock Measure" after its primary early proponent, Earnest C. Reock (1961).

The second measure is based upon the calculation of the "perimeter" a district. Conceptually it evaluates the length of the district's perimeter relative to the amount of area



included within the district. The reported coefficient is the proportion of the area in the district relative to a circle with the same perimeter. The coefficient also ranges from 1.0 (most compact) to 0.0 (least compact). This measure may be traced to a 1927 article by Cox (Niemi et al., 1990: 1161), and has recently been referred to as the "Polsby-Popper Measure" due to their support for its application (Polsby and Popper 1991).

#### Compactness Calculations: Hypothetical and Real World Examples

It is generally rare to find real-world jurisdictions having substantial levels of geographic compactness. To demonstrate this point and the application of the two measures of compactness employed in this report, compactness coefficients are presented for a square, a rectangle, the state of Virginia, the city of Newport News, Lee County, King William County, and three voting precincts or "VTDs" (Figures 1-9 ). Visually, squares are generally evaluated as being highly compact. But the geographic dispersion measure for the square in Figure 1 is far below a "perfect" 1.00 at 0.636. Similarly its perimeter compactness coefficient is 0.785. When calculated for the rectangle in Figure 2 the geographic dispersion coefficient falls to 0.381 and the perimeter measure to 0.589.

Figures 3-9 provide "real-world" Virginia examples of the application of both compactness measures. For example, the state of Virginia is presented in Figure 3 and has a geographic dispersion compactness coefficient of 0.229, but a lesser score of 0.163 on the perimeter compactness measure. Map makers will arguably find creating highly compact districts in irregularly shaped states like Virginia more difficult than in more geometrically compact states such as Colorado, all things being equal (Polsby and Popper 1991: 351). The compactness of the city of Newport News is presented in Figure 4. Notably, while its



dispersion compactness (0.219) is fairly similar to the state of Virginia's, its perimeter compactness (0.307) is substantially greater. This comparison underscores that the two compactness measures employed here emphasize different aspects of geographic compactness and do not necessarily vary from jurisdiction to jurisdiction in highly similar manners. Figures 5 and 6 present the compactness of Lee County and King William County. Clearly Lee County's level of geographic dispersion compactness (0.204) is in part constrained by its geographic location in the western "toe" of Virginia (Figure 5). In contrast, its large proportion of straight line boundaries keeps its level of perimeter compactness (0.352) comparatively high. King William County's (Figure 6) level of compactness is constrained by its meandering boundary which substantially decreases its level of perimeter compactness (0.159) when compared to Lee County. Finally, and as noted above, the shapes of the building block units used to delineate representational districts can limit their objective compactness. Figures 7-9 present the shapes of three different voting precincts. All three are intended to illustrate the difficulties a map maker faces when attempting to build highly compact districts from irregularly shaped building blocks. Their geographic dispersion compactness coefficients range from 0.093 to 0.203, and their perimeter compactness coefficients range from 0.144 to 0.255.

The above examples should underscore that the two compactness indicators emphasize different geographic dimensions and should be used in tandem given their contrasts. It is quite possible that the compactness coefficient for one of the two indicators is relatively quite large when compared to the other. Secondly, the above examples also underscore that compactness coefficients below 0.200 or 0.100 are not uncommon, most particularly for the perimeter measure. Pildes and Niemi (1993: 563), for example, reported that in 1993, 13%

of all congressional districts in the United States had perimeter measures less than 0.100.

#### Evaluating Compactness Measure Coefficients

There are no strict scales or "bright lines" to judge compact and noncompact districts using the two compactness measures used in this report. The lack of a strict standard reflects the reality that compactness indicators cannot be evaluated without attention to both the legal context under which the districting process is occurring and local geographic conditions. We cannot, therefore, simply conclude that a coefficient of 0.100 qualifies as a low level of compactness without considering the circumstances under which the district was delineated. Underscoring this point is the fact that many county boundaries follow the irregular courses of rivers. If a district boundary follows a county boundary which follows the course of a meandering river, its perimeter may be significantly extended. Under these circumstances the district's perimeter compactness measure may be low when compared to a district of the same areal size but with straight line boundaries.

With attention to the above noted caveats, Pildes and Niemi (1993: 565) provide guidance to evaluate the two measures used in this report. With substantial attention paid to the Court's language in *Shaw*, they suggest cutoff levels for "low" compactness on both the dispersion and perimeter indicators. With respect to the dispersion compactness measure, they suggest "low" is equal to or less than 0.150. On the perimeter compactness measure they suggest that "low" is equal to or less than 0.050. With respect to this guidance, they state that "In choosing the cutoff points used . . . [here], . . . we do not imply that all districts below those points, or only those districts, are vulnerable after *Shaw*" (Pildes and Niemi 1993: 564).

But it is true that those 1992 congressional districts successfully challenged in North Carolina (12th) and Texas (18th, 29th, and 30th) were below these cutoffs on one if not both of the compactness measures used here. They were also used to affirmatively determine the constitutionality of the four Alabama legislative districts challenged in *Rice v. Bennett* in late 1997. Finally, they were also used by a three-judge panel in *Cromartie v. Hunt* to analyze Congressional Districts 1 and 12 in North Carolina's 1997 congressional districting plan. Most notably in this regard is the Supreme Court's decision in April 2001 in the *Cromartie* litigation which found constitutional the spatial configuration of the 12<sup>th</sup> Congressional District as delineated in 1997, but not used until 2000. The 12<sup>th</sup> Congressional district's geographic dispersion compactness coefficient was 0.109 and its perimeter compactness coefficient was 0.041. While it would be improper to assume all districts above these levels are prima facie constitutional, the decision does provide general support for the relevance of the low compactness cutoff points as suggested by Pildes and Niemi (1993). This is most particularly the case if a district characterized by comparatively low geographic compactness was delineated for partisan or incumbent protection purposes.

A final set of questions to be addressed pertain to the appropriateness of applying these two compactness indicators and their suggested benchmarks for "low" compactness to districts at different scales (e.g., congressional, state legislative, city council districts). Because both measures are ratios they are completely appropriate for application to any geographic scale of districts, whether congressional, state legislative or city council districts.

Whether the benchmarks for "low" compactness are equally applicable to districts at different geographic scales may be in part dependent on the specific characteristics of the units in question. For example, Pildes and Niemi (1993: 559) suggest the contrasting levels

of adherence to the one-person-one-vote standard can impact the resulting levels of compactness. In general, population equality between congressional districts is required at levels substantially less than 1.0%. In contrast, in most states legislative districts may legally have total population deviations up to 10% (Grofman et al., 1992: 110-111; Pildes and Niemi 1993: 559). This less restrictive parameter may provide greater flexibility in the geographic delineation of legislative districts. The potential for this greater flexibility is largely non-existent in Virginia due to its much stricter requirement that district populations not vary by more than "plus-or-minus two percent."

More pertinent from a geographic as well as a practical perspective is the number of potential building blocks for the delineation of districts at different scales. The number of potential building blocks, be they census blocks, census tracts or election precincts, will constrain the levels of geographic compactness of smaller scale units to a greater degree than larger scale units. To define a congressional district the map maker may have thousands of blocks or hundreds of precincts from which to converge on an acceptable solution. In contrast, lower level units (e.g., legislative or city council districts) will have a far smaller number, perhaps dozens, of potential building block units for inclusion to converge on an acceptable solution.

Because these building block units can vary widely in their respective populations and geographic shape, even a somewhat less stringent population equality standard of  $\pm 2.0\%$  (as compared to  $\pm 1.0\%$  for congressional districts) may be an obstacle to simultaneously creating highly compact districts. Thus, nationally the greater flexibility provided by a less stringent population equity requirement for state legislative districts can be largely negated by a reduced number of potential building block geographic units. This practical limitation is

particularly pertinent to Virginia due to its stricter population equality requirement.

Therefore, in my opinion the Pildes and Niemi suggested cut off points for low compactness may be applied to lower scale geographic districts as well as congressional districts.

#### (4) COMPACTNESS OF VIRGINIA'S HOUSE OF DELEGATES DISTRICTS

Both compactness measures were assembled in tabular format for all of Virginia's 100 House of Delegates districts in the Enrolled Plan, in the Robinson Plan, and for the 1990s Plan (Tables 1-3). Table 1 presents both compactness indicators in the order of the House of Delegates district numbers. Table 2 orders all 100 House of Delegates districts in terms of increasing coefficient magnitude on the perimeter compactness measure for all three of the plans. Table 3 lists all House of Delegates districts in terms of increasing coefficient magnitude on the geographic dispersion compactness measure for all three plans. The three plans are also presented in map form in Figures 10-12.

The average value for all 100 Virginia House of Delegates districts in the Enrolled Plan on the perimeter compactness measure was 0.26 (Table 1). This was virtually identical to the mean on the perimeter measure in the 1990s Plan (0.26), though slightly less than for the Robinson Plan (0.28).

No district in any of the three plans had a perimeter compactness coefficient below the suggested 0.05 benchmark for low compactness (Table 2). But the 1990s Plan did include the lowest coefficients on this measure of any of the three plans. For example, four House of Delegates districts in the 1990s Plan (districts 62, 77, 89, and 98) had perimeter compactness coefficients below 0.10, while no district in either the Enrolled Plan or the Robinson Plan had a single district below 0.10 on the perimeter compactness measure. In

contrast, the lowest perimeter compactness coefficient for the Enrolled Plan was for district 74 at 0.10. In the Robinson Plan the least compact district was 77 at 0.13.

In summary with regard to the perimeter compactness measure, none of the three plans included a single district with a coefficient below the suggested cut off level for low compactness. In spite of this finding, the 1990s Plan did have multiple districts of lesser levels of perimeter compactness when compared to the Enrolled or Robinson Plans. The Enrolled Plan and the Robinson Plan differ only minimally in their mean levels of perimeter compactness. The mean for the Robinson Plan is 0.02 larger than for the Enrolled Plan, a difference that is negligible.

The mean level of dispersion compactness for the Enrolled Plan's 100 House of Delegates districts was 0.38. This was marginally above the mean for the 1990s Plan of 0.37, and marginally below the mean for the Robinson Plan of 0.39. The difference in means between the Enrolled and Robinson plans was extremely negligible at 0.01. Both plans should therefore be judged as virtually identical in terms of their mean levels of geographic dispersion compactness.

As stated above, all three plans are largely comparable with respect to their means on the geographic dispersion compactness measure. But the 1990s plan had one district with geographic dispersion compactness coefficient below the suggested cut off level of 0.15 for low compactness (Table 3). This district, number 74, had a geographic dispersion compactness coefficient of 0.14. In contrast, the Enrolled Plan's lowest coefficient was for District 74 at 0.16. The Robinson Plan's lowest coefficient was also for District 74 at an identical 0.16.

In summary, the three plans were largely similar in their mean levels of perimeter and

geographic dispersion compactness. But while the Enrolled and Robinson Plans had no districts below the suggested cut off points for low compactness, the 1990s Plan had one district with a low level of compactness on the geographic dispersion measure (District 74). When comparing the Enrolled and Robinson Plans directly, they are judged very similar in terms of both compactness measures.

District Compactness for Virginia's House of Delegates Districts in Comparison to the Lower Chambers of Other Southern State Legislatures

Table 4 presents the average or mean compactness for all state House districts in Alabama, South Carolina, Georgia, Louisiana, North Carolina and Virginia in the 1990s so that they may be compared with the Enrolled Plan. This comparison is undertaken to provide a context for the Enrolled Plan's mean level of perimeter and geographic dispersion compactness. The means for other states in the 1990s are used because they are the most current available. Alabama, for example, has only recently passed a new state House districting plan and is now awaiting a preclearance decision from the Department of Justice.

The Enrolled Plan's House of Delegates districts compare favorably with those in other states (Table 4). While its mean level of geographic dispersion compactness of 0.38 is below Georgia's mean of 0.39, it is above that for South Carolina (0.36), Louisiana (0.37), and Virginia in the 1990s (0.37), and virtually identical to Alabama (0.38) and North Carolina (0.38). Similarly, the Enrolled Plan's perimeter compactness mean of 0.26 is below Georgia's (0.29), but above the means for Alabama (0.25), South Carolina (0.24), and North Carolina (0.25). And the Enrolled Plan's perimeter compactness mean is virtually identical to the mean for the 1990s plans in Virginia (0.26) and Louisiana (0.26).



##### 5) COMPACTNESS OF VIRGINIA'S STATE SENATE DISTRICTS

Both compactness measures were assembled in tabular format for all of Virginia's 40 state Senate districts in the "Enrolled Plan," the "Miller Plan," and the "1990s Plan." Table 5 presents both compactness indicators in order of their state Senate district numbers. Table 6 orders all 40 state Senate districts in terms of increasing coefficient magnitude on the perimeter compactness measure for all three of the plans. Table 7 orders all 40 state Senate districts in terms of increasing coefficient magnitude on the geographic dispersion compactness measure for all three of the plans. The three plans are also presented cartographically in Figures 13-15.

The average value for all 40 Virginia state Senate districts in the Enrolled Plan on the perimeter measure was 0.24 (Table 5). This was virtually identical to the mean on the perimeter measure in the 1990s Plan (0.24), though slightly less than for the Miller Plan (0.26). The total range of the means was 0.02, indicating all three plans are quite similar in terms of their average levels of perimeter compactness.

As discussed above, 0.05 may be considered "low" on the perimeter compactness measure. None of the three plans had a single district with a perimeter compactness score below this level (Table 6). But the 1990s Plan did have two districts below 0.10 including the 16<sup>th</sup> (0.09) and 2<sup>nd</sup> (0.09). While the Enrolled Plan had no district below 0.10 on the perimeter compactness measure, District 16 in the Miller Plan had a coefficient of 0.09. The lowest score on the perimeter compactness measure in the Enrolled Plan was for District 18 at 0.12. Notably, four districts in the 1990s Plan (districts 16, 2, 15, 18) and three districts in the Miller Plan (16, 5, 12) were less compact on the perimeter measure than the least compact district in the Enrolled Plan (District 18 at 0.12).



In summary on the perimeter compactness measure, none of the three Senate plans included a district below the 0.05 level suggested for low compactness. Secondly, the means for all three plans were similar. But in spite of the fact that the Miller Plan had a marginally higher mean level of perimeter compactness, the Miller Plan included three districts of lesser compactness than the least compact district in the Enrolled Plan on the perimeter compactness measure.

The mean level of geographic dispersion compactness for Virginia's 40 state Senate districts as delineated in the Enrolled Plan was 0.35. This mean level of geographic dispersion compactness for the Enrolled Plan was virtually identical to the mean for the 1990s plan (0.35), but less in magnitude than that calculated for the Miller Plan (0.39).

As noted above, 0.15 has been suggested as a cut off point for low compactness on the geographic dispersion measure. Notably, two districts in the 1990s Plan and one each in the Enrolled and Miller Plans were below this level. Districts 18 (0.12) and 28 (0.14) in the 1990s Plan, District 40 (0.14) in the Enrolled Plan, and District 40 (0.14) in the Miller Plan, are below 0.15. In both the Miller and Enrolled Plans, District 40 includes the extreme western "toe" of the state creating an elongated district which scores poorly on the geographic dispersion measure.

In summary, the means for all three plans are very similar on the perimeter compactness measure. Secondly, no district in any of the three plans falls below the 0.05 benchmark for low compactness on the perimeter measure. But the 1990s Plan and the Miller Plan do have multiple districts of lower perimeter compactness than the least compact district in the Enrolled Plan. On the geographic dispersion compactness measure the means are similar between the 1990s Plan and Enrolled Plan, but higher on the Miller Plan.

Notably all three plans had districts below the 0.15 benchmark for low compactness. While only one each was included in the Miller and Enrolled Plans, the 1990s Plan included two. These results suggest that the Enrolled Plan is an improvement over the 1990s Plan in terms of the compactness criterion.

District Compactness for Virginia's State Senate Districts in Comparison to the Upper Chambers of Other Southern State Legislatures

Table 8 presents the average mean compactness for all state Senate districts in Alabama, South Carolina, Georgia, North Carolina, Virginia in the 1990s, and Virginia's 2001 Enrolled Plan. The mean level of perimeter compactness of Virginia's Enrolled Plan compares favorably to the averages in the other states. While the mean level of perimeter compactness of the Enrolled Plan (0.24) is less than that calculated for Georgia (0.29) or North Carolina (0.25), it is above the means for both Alabama (0.19) and South Carolina (0.18). In contrast, Virginia's 1991 and 2001 mean levels of Senate district dispersion compactness are less than those determined for the other states. This relative disparity may reflect the state of Virginia's more irregular shape when compared to the other states included.

(6) CONTIGUITY

Several states including Virginia require that legislative districts be composed of contiguous area (Grofman 1985: 84, 177-183). A district is typically defined as contiguous if every part of the district is accessible to all other parts without having to travel into a second district. This criterion rarely generates controversy. When controversy has arisen, the focus of contention has generally pertained to areas dissected by water features.

In the "Criteria" section of its February 23, 1991 guidelines for redistricting, Virginia's House Committee on Privileges and Elections stated the following:

Districts shall be composed of contiguous territory. Contiguity by water is acceptable to link territory within a district in order to meet the other criteria stated herein and provided that there is reasonable opportunity for travel within the district.

In its April 3, 2001 section on "Contiguity and Compactness," the House Committee on Privileges and Elections" states that "Districts shall be comprised of contiguous territory including adjoining insular territory. Contiguity by water is sufficient . . . ."

The use of water contiguity in Virginia is further supported in a 1984 opinion by the state's Attorney General (1984-85 Va. Op. AG. 128). As stated in the opinion, "it is held that territories not separated by intervening lands but only by water may be considered contiguous to each other." The opinion cites *First Virginia Bank v. Commonwealth*, 212 Va. 654, 655, 187 S.E.2d 186 (1972) in this conclusion.

On this basis, the contiguity of all three plans for the House of Delegates and Senate were examined using "Maptitude for Redistricting" software. Maptitude's "contiguity report" determines if any district is composed of more than a single polygon. If a district is composed of two or more polygons, it is classified as non-contiguous. All six plans tested were defined as contiguous by the Maptitude contiguity report.

#### (7) CONCLUSIONS

The purpose of this report was to evaluate the compliance of Virginia's 100 House of Delegates and 40 state Senate districts as included in the Enrolled Plans on the compactness

and contiguity criteria. For comparative purposes, this report also included analysis of Virginia's 1990s Plan and the Robinson Plan when discussing the House of Delegates, and the state's 1990s Plan and Miller Plan when discussing the Senate.

With respect to the House of Delegates, this analysis found that no district in the Enrolled Plan has a level of perimeter or geographic dispersion compactness below suggested cut off points for low compactness. Of the three plans, only the 1990s Plan included any districts that might be judged of "low" compactness on the geographic dispersion measure, and none of the three plans included a district below the suggested level on the perimeter measure.

A examination of the House of Delegates Enrolled Plan's mean level of compactness with state House plans for the 1990s in other Southern states determined the Enrolled plan compared favorably. While such comparisons must be undertaken cautiously given the contrasting geographic constraints found in different states, Virginia's Enrolled Plan was second only to Georgia on the perimeter compactness measure. On the geographic dispersion measure, Virginia's Enrolled Plan was equal to or above the means for most of the comparison states.

The evaluation of Virginia's state Senate districts produced generally similar results. The Enrolled Plan's levels of perimeter and geographic compactness were equal to or above the levels in the 1990s Plan. The Enrolled Plan also had fewer districts of comparatively low compactness than the 1990s Plan. The lowest district in terms of perimeter compactness in the Enrolled Plan was district 18 at 0.12. This level was higher than the lowest four districts in the 1990s Plan. Finally, the Senate Enrolled Plan compared favorably with the mean levels of perimeter compactness for the state senates in five other states. While

comparing less favorably to the other five states on the geographic dispersion measure, the disparity is moderate as opposed to substantial. Arguably the contrast may in part be due to Virginia's comparatively irregular shape and the constraints it places on efforts to create highly compact districts.

All six plans examined were also tested for geographic contiguity. For the House of Delegates, the current plan, the Enrolled Plan, and the Robinson Plan were all found to be composed of contiguous districts. For the Senate, the current plan, the Enrolled Plan, and the Miller Plan were all found to be composed of contiguous districts.

In conclusion, I find both the House of Delegates and state Senate districts as defined in the respective Enrolled Plans to meet the expectations of the compactness and contiguity criteria. The levels of geographic compactness in both chambers' 2001 plans meet or exceed the levels existing in the 1990s Plans. Both plans were further determined to have no non-contiguous districts.

September 1, 2001

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Qualifications, Publications and Compensation.

My vita accompanies this report, and list my qualifications and all publications. My hourly fee is \$125.

Testimony in Court or by Deposition in past five years:

Dillard v. City of Greensboro, Alabama (M.D. AL), 1996.

Cannon v. Durham County Board of Elections (E.D. NC), 1996.

Dillard v. Baldwin County Commission (M.D. AL), 1997.

Stovall et al., v. City of Cocoa, Florida (M.D. FL), 1997.

Rice v. Bennett (Montgomery County, AL, Circuit Court), 1997.

Cromartie v. Hunt (E.D. NC), 1997.

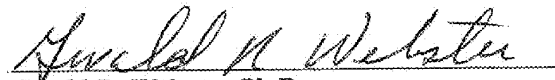
Daly v. Leak (E.D. NC) 1998.

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Del Rio v. Perry (Travis County, TX) and Associated Republicans of Texas v. Cuellar (Harris County, TX), 2001.

Signed:



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University of Alabama

Date:

Sept. 1, 2001



Table 1  
Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
By District Number

District	Perimeter Compactness			Geographic Dispersion Compactness		
	1990's Plan	Robinson Plan	Enrolled Plan	1990's Plan	Robinson Plan	Enrolled Plan
District 1	0.31	0.23	0.23	0.25	0.25	0.18
District 2	0.39	0.29	0.23	0.55	0.51	0.36
District 3	0.36	0.22	0.19	0.51	0.36	0.38
District 4	0.60	0.60	0.29	0.45	0.45	0.40
District 5	0.30	0.29	0.23	0.41	0.46	0.43
District 6	0.31	0.24	0.21	0.57	0.44	0.38
District 7	0.25	0.16	0.16	0.45	0.30	0.32
District 8	0.18	0.21	0.44	0.29	0.32	0.52
District 9	0.14	0.16	0.20	0.25	0.45	0.32
District 10	0.18	0.21	0.20	0.19	0.37	0.33
District 11	0.17	0.29	0.26	0.29	0.48	0.48
District 12	0.29	0.40	0.22	0.58	0.59	0.23
District 13	0.22	0.26	0.16	0.32	0.41	0.36
District 14	0.17	0.24	0.18	0.40	0.35	0.18
District 15	0.25	0.34	0.23	0.36	0.47	0.44
District 16	0.23	0.34	0.12	0.46	0.55	0.33
District 17	0.11	0.23	0.13	0.34	0.44	0.33
District 18	0.31	0.35	0.28	0.41	0.50	0.47
District 19	0.15	0.24	0.24	0.44	0.46	0.55
District 20	0.24	0.34	0.18	0.43	0.33	0.47
District 21	0.18	0.29	0.17	0.24	0.45	0.21
District 22	0.20	0.16	0.20	0.26	0.31	0.39
District 23	0.22	0.17	0.21	0.38	0.30	0.36
District 24	0.16	0.21	0.20	0.35	0.44	0.57
District 25	0.27	0.22	0.24	0.31	0.39	0.44
District 26	0.18	0.15	0.54	0.23	0.36	0.52
District 27	0.37	0.39	0.23	0.41	0.37	0.30
District 28	0.50	0.26	0.29	0.55	0.52	0.49
District 29	0.34	0.28	0.31	0.46	0.46	0.45
District 30	0.43	0.23	0.35	0.60	0.42	0.59
District 31	0.29	0.45	0.15	0.48	0.60	0.34
District 32	0.21	0.30	0.36	0.23	0.34	0.35
District 33	0.26	0.29	0.33	0.50	0.43	0.42
District 34	0.25	0.30	0.27	0.25	0.33	0.30
District 35	0.19	0.34	0.31	0.41	0.37	0.38
District 36	0.36	0.42	0.41	0.46	0.44	0.47
District 37	0.17	0.27	0.35	0.31	0.26	0.50
District 38	0.29	0.34	0.34	0.36	0.47	0.53
District 39	0.47	0.39	0.27	0.44	0.41	0.29
District 40	0.31	0.25	0.30	0.43	0.28	0.39
District 41	0.37	0.31	0.25	0.37	0.39	0.44
District 42	0.25	0.21	0.26	0.38	0.33	0.39
District 43	0.35	0.33	0.59	0.29	0.43	0.49
District 44	0.41	0.27	0.27	0.60	0.46	0.37
District 45	0.29	0.45	0.17	0.31	0.43	0.33
District 46	0.48	0.60	0.42	0.49	0.65	0.51
District 47	0.24	0.33	0.32	0.22	0.41	0.34
District 48	0.22	0.18	0.22	0.26	0.24	0.26
District 49	0.29	0.36	0.18	0.36	0.48	0.25
District 50	0.17	0.20	0.28	0.24	0.30	0.48
District 51	0.32	0.25	0.28	0.36	0.30	0.40
District 52	0.33	0.24	0.34	0.34	0.34	0.47
District 53	0.24	0.21	0.25	0.30	0.37	0.43
District 54	0.30	0.27	0.30	0.39	0.61	0.37
District 55	0.24	0.30	0.27	0.35	0.38	0.39
District 56	0.36	0.34	0.33	0.46	0.46	0.41
District 57	0.32	0.23	0.16	0.48	0.36	0.31
District 58	0.25	0.17	0.15	0.42	0.43	0.33

Source: Calculated by the University of Alabama Cartographic Laboratory

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Table 1  
Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
By District Number

District	Perimeter Compactness			Geographic Dispersion Compactness		
	1990's Plan	Robinson Plan	Enrolled Plan	1990's Plan	Robinson Plan	Enrolled Plan
District 59	0.31	0.34	0.27	0.52	0.48	0.56
District 60	0.36	0.36	0.30	0.61	0.40	0.34
District 61	0.21	0.14	0.15	0.42	0.31	0.36
District 62	0.07	0.17	0.15	0.31	0.27	0.34
District 63	0.23	0.45	0.49	0.46	0.62	0.61
District 64	0.10	0.35	0.19	0.26	0.48	0.42
District 65	0.26	0.20	0.34	0.32	0.47	0.48
District 66	0.17	0.24	0.24	0.22	0.31	0.31
District 67	0.34	0.48	0.26	0.45	0.48	0.43
District 68	0.26	0.19	0.19	0.38	0.30	0.35
District 69	0.16	0.22	0.20	0.27	0.36	0.37
District 70	0.15	0.16	0.14	0.39	0.26	0.47
District 71	0.20	0.45	0.19	0.36	0.42	0.24
District 72	0.20	0.18	0.23	0.33	0.37	0.25
District 73	0.13	0.23	0.19	0.35	0.36	0.36
District 74	0.12	0.18	0.10	0.14	0.16	0.16
District 75	0.16	0.15	0.21	0.39	0.22	0.42
District 76	0.14	0.23	0.17	0.43	0.35	0.36
District 77	0.08	0.13	0.24	0.16	0.17	0.25
District 78	0.37	0.63	0.46	0.46	0.53	0.54
District 79	0.35	0.32	0.24	0.48	0.39	0.37
District 80	0.37	0.20	0.26	0.48	0.25	0.39
District 81	0.50	0.51	0.28	0.49	0.50	0.40
District 82	0.46	0.46	0.57	0.57	0.57	0.56
District 83	0.20	0.20	0.38	0.25	0.26	0.31
District 84	0.35	0.25	0.30	0.37	0.34	0.35
District 85	0.27	0.25	0.40	0.54	0.49	0.52
District 86	0.36	0.22	0.30	0.23	0.24	0.34
District 87	0.28	0.39	0.22	0.31	0.50	0.37
District 88	0.18	0.34	0.16	0.41	0.48	0.36
District 89	0.08	0.21	0.31	0.19	0.33	0.58
District 90	0.13	0.14	0.22	0.25	0.22	0.35
District 91	0.25	0.27	0.40	0.42	0.30	0.57
District 92	0.21	0.22	0.14	0.38	0.46	0.25
District 93	0.15	0.29	0.18	0.19	0.20	0.17
District 94	0.33	0.59	0.39	0.32	0.46	0.35
District 95	0.30	0.29	0.29	0.30	0.29	0.43
District 96	0.13	0.16	0.15	0.19	0.16	0.23
District 97	0.15	0.17	0.12	0.23	0.27	0.27
District 98	0.09	0.18	0.26	0.15	0.31	0.25
District 99	0.31	0.28	0.21	0.24	0.21	0.27
District 100	0.38	0.33	0.35	0.39	0.38	0.27
Mean	0.26	0.28	0.26	0.37	0.39	0.38
Standard Devialton	0.10	0.11	0.10	0.11	0.11	0.10

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012348

Table 2  
Perimeter Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Robinson Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 62	0.07	District 74	0.10	District 77	0.13
District 77	0.08	District 16	0.12	District 61	0.14
District 89	0.08	District 97	0.12	District 90	0.14
District 98	0.09	District 17	0.13	District 26	0.15
District 64	0.10	District 70	0.14	District 75	0.15
District 17	0.11	District 92	0.14	District 7	0.16
District 74	0.12	District 31	0.15	District 9	0.16
District 73	0.13	District 58	0.15	District 22	0.16
District 90	0.13	District 61	0.15	District 70	0.16
District 96	0.13	District 62	0.15	District 96	0.16
District 9	0.14	District 96	0.15	District 23	0.17
District 76	0.14	District 7	0.16	District 58	0.17
District 19	0.15	District 13	0.16	District 62	0.17
District 70	0.15	District 57	0.16	District 97	0.17
District 93	0.15	District 88	0.16	District 48	0.18
District 97	0.15	District 21	0.17	District 72	0.18
District 24	0.16	District 45	0.17	District 74	0.18
District 69	0.16	District 76	0.17	District 98	0.18
District 75	0.16	District 14	0.18	District 68	0.19
District 11	0.17	District 20	0.18	District 50	0.20
District 14	0.17	District 49	0.18	District 65	0.20
District 37	0.17	District 93	0.18	District 80	0.20
District 50	0.17	District 3	0.19	District 83	0.20
District 66	0.17	District 64	0.19	District 8	0.21
District 8	0.18	District 68	0.19	District 10	0.21
District 10	0.18	District 71	0.19	District 24	0.21
District 21	0.18	District 73	0.19	District 42	0.21
District 26	0.18	District 9	0.20	District 53	0.21
District 88	0.18	District 10	0.20	District 89	0.21
District 35	0.19	District 22	0.20	District 3	0.22
District 22	0.20	District 24	0.20	District 25	0.22
District 71	0.20	District 69	0.20	District 69	0.22
District 72	0.20	District 6	0.21	District 86	0.22
District 83	0.20	District 23	0.21	District 92	0.22
District 32	0.21	District 75	0.21	District 1	0.23
District 61	0.21	District 99	0.21	District 17	0.23
District 92	0.21	District 12	0.22	District 30	0.23
District 13	0.22	District 48	0.22	District 57	0.23
District 23	0.22	District 87	0.22	District 73	0.23
District 48	0.22	District 90	0.22	District 76	0.23
District 16	0.23	District 1	0.23	District 6	0.24
District 63	0.23	District 2	0.23	District 14	0.24
District 20	0.24	District 5	0.23	District 19	0.24
District 47	0.24	District 15	0.23	District 52	0.24
District 53	0.24	District 27	0.23	District 66	0.24
District 55	0.24	District 72	0.23	District 40	0.25
District 7	0.25	District 19	0.24	District 51	0.25
District 15	0.25	District 25	0.24	District 84	0.25
District 34	0.25	District 66	0.24	District 85	0.25
District 42	0.25	District 77	0.24	District 13	0.26
District 58	0.25	District 79	0.24	District 28	0.26
District 91	0.25	District 41	0.25	District 37	0.27
District 33	0.26	District 53	0.25	District 44	0.27
District 65	0.26	District 11	0.26	District 54	0.27
District 68	0.26	District 42	0.26	District 91	0.27
District 25	0.27	District 67	0.26	District 29	0.28
District 85	0.27	District 80	0.26	District 99	0.28
District 87	0.28	District 98	0.26	District 2	0.29

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012349



Table 2  
Perimeter Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Robinson Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 12	0.29	District 34	0.27	District 5	0.29
District 31	0.29	District 39	0.27	District 11	0.29
District 38	0.29	District 44	0.27	District 21	0.29
District 45	0.29	District 55	0.27	District 33	0.29
District 49	0.29	District 59	0.27	District 93	0.29
District 5	0.30	District 18	0.28	District 95	0.29
District 54	0.30	District 50	0.28	District 32	0.30
District 95	0.30	District 51	0.28	District 34	0.30
District 1	0.31	District 81	0.28	District 55	0.30
District 6	0.31	District 4	0.29	District 41	0.31
District 18	0.31	District 28	0.29	District 79	0.32
District 40	0.31	District 95	0.29	District 43	0.33
District 59	0.31	District 40	0.30	District 47	0.33
District 99	0.31	District 54	0.30	District 100	0.33
District 51	0.32	District 60	0.30	District 15	0.34
District 57	0.32	District 84	0.30	District 16	0.34
District 52	0.33	District 86	0.30	District 20	0.34
District 94	0.33	District 29	0.31	District 35	0.34
District 29	0.34	District 35	0.31	District 38	0.34
District 67	0.34	District 89	0.31	District 56	0.34
District 43	0.35	District 47	0.32	District 59	0.34
District 79	0.35	District 33	0.33	District 88	0.34
District 84	0.35	District 56	0.33	District 18	0.35
District 3	0.36	District 38	0.34	District 64	0.35
District 36	0.36	District 52	0.34	District 49	0.36
District 56	0.36	District 65	0.34	District 60	0.36
District 60	0.36	District 30	0.35	District 27	0.39
District 86	0.36	District 37	0.35	District 39	0.39
District 27	0.37	District 100	0.35	District 87	0.39
District 41	0.37	District 32	0.36	District 12	0.40
District 78	0.37	District 83	0.38	District 36	0.42
District 80	0.37	District 94	0.39	District 31	0.45
District 100	0.38	District 85	0.40	District 45	0.45
District 2	0.39	District 91	0.40	District 63	0.45
District 44	0.41	District 36	0.41	District 71	0.45
District 30	0.43	District 46	0.42	District 82	0.46
District 82	0.46	District 8	0.44	District 67	0.48
District 39	0.47	District 78	0.46	District 81	0.51
District 46	0.48	District 63	0.49	District 94	0.59
District 28	0.50	District 26	0.54	District 4	0.60
District 81	0.50	District 82	0.57	District 46	0.60
District 4	0.60	District 43	0.59	District 78	0.63
Mean	0.26		0.26		0.28
Standard Deviaton	0.10		0.10		0.11

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012350

Table 3  
Geographic Dispersion Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Robinson Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 74	0.14	District 74	0.16	District 74	0.16
District 98	0.15	District 93	0.17	District 96	0.16
District 77	0.16	District 1	0.18	District 77	0.17
District 10	0.19	District 14	0.18	District 93	0.20
District 89	0.19	District 21	0.21	District 99	0.21
District 93	0.19	District 12	0.23	District 75	0.22
District 96	0.19	District 96	0.23	District 90	0.22
District 47	0.22	District 71	0.24	District 48	0.24
District 66	0.22	District 49	0.25	District 86	0.24
District 26	0.23	District 72	0.25	District 1	0.25
District 32	0.23	District 77	0.25	District 80	0.25
District 86	0.23	District 92	0.25	District 37	0.26
District 97	0.23	District 98	0.25	District 70	0.26
District 21	0.24	District 48	0.26	District 83	0.26
District 50	0.24	District 97	0.27	District 62	0.27
District 99	0.24	District 99	0.27	District 97	0.27
District 1	0.25	District 100	0.27	District 40	0.28
District 9	0.25	District 39	0.29	District 95	0.29
District 34	0.25	District 27	0.30	District 7	0.30
District 83	0.25	District 34	0.30	District 23	0.30
District 90	0.25	District 57	0.31	District 50	0.30
District 22	0.26	District 66	0.31	District 51	0.30
District 48	0.26	District 83	0.31	District 68	0.30
District 64	0.26	District 7	0.32	District 91	0.30
District 69	0.27	District 9	0.32	District 22	0.31
District 8	0.29	District 10	0.33	District 61	0.31
District 11	0.29	District 16	0.33	District 66	0.31
District 43	0.29	District 17	0.33	District 98	0.31
District 53	0.30	District 45	0.33	District 8	0.32
District 95	0.30	District 58	0.33	District 20	0.33
District 25	0.31	District 31	0.34	District 34	0.33
District 37	0.31	District 47	0.34	District 42	0.33
District 45	0.31	District 60	0.34	District 89	0.33
District 62	0.31	District 62	0.34	District 32	0.34
District 87	0.31	District 86	0.34	District 52	0.34
District 13	0.32	District 32	0.35	District 84	0.34
District 65	0.32	District 68	0.35	District 14	0.35
District 94	0.32	District 84	0.35	District 76	0.35
District 72	0.33	District 90	0.35	District 3	0.36
District 17	0.34	District 94	0.35	District 26	0.36
District 52	0.34	District 2	0.36	District 57	0.36
District 24	0.35	District 13	0.36	District 69	0.36
District 55	0.35	District 23	0.36	District 73	0.36
District 73	0.35	District 61	0.36	District 10	0.37
District 15	0.36	District 73	0.36	District 27	0.37
District 38	0.36	District 76	0.36	District 35	0.37
District 49	0.36	District 88	0.36	District 53	0.37
District 51	0.36	District 44	0.37	District 72	0.37
District 71	0.36	District 54	0.37	District 55	0.38
District 41	0.37	District 69	0.37	District 100	0.38
District 84	0.37	District 79	0.37	District 25	0.39
District 23	0.38	District 87	0.37	District 41	0.39
District 42	0.38	District 3	0.38	District 79	0.39
District 68	0.38	District 6	0.38	District 60	0.40
District 92	0.38	District 35	0.38	District 13	0.41
District 54	0.39	District 22	0.39	District 39	0.41
District 70	0.39	District 40	0.39	District 47	0.41
District 75	0.39	District 42	0.39	District 30	0.42

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012351

Table 3  
Geographic Dispersion Compactness of 1990s, Enrolled and Robinson House of Delegates Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Robinson Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 100	0.39	District 55	0.39	District 71	0.42
District 14	0.40	District 80	0.39	District 33	0.43
District 5	0.41	District 4	0.40	District 43	0.43
District 18	0.41	District 51	0.40	District 45	0.43
District 27	0.41	District 81	0.40	District 58	0.43
District 35	0.41	District 56	0.41	District 6	0.44
District 88	0.41	District 33	0.42	District 17	0.44
District 58	0.42	District 64	0.42	District 24	0.44
District 61	0.42	District 75	0.42	District 36	0.44
District 91	0.42	District 5	0.43	District 4	0.45
District 20	0.43	District 53	0.43	District 9	0.45
District 40	0.43	District 67	0.43	District 21	0.45
District 76	0.43	District 95	0.43	District 5	0.46
District 19	0.44	District 15	0.44	District 19	0.46
District 39	0.44	District 25	0.44	District 29	0.46
District 4	0.45	District 41	0.44	District 44	0.46
District 7	0.45	District 29	0.45	District 56	0.46
District 67	0.45	District 18	0.47	District 92	0.46
District 16	0.46	District 20	0.47	District 94	0.46
District 29	0.46	District 36	0.47	District 15	0.47
District 36	0.46	District 52	0.47	District 38	0.47
District 56	0.46	District 70	0.47	District 65	0.47
District 63	0.46	District 11	0.48	District 11	0.48
District 78	0.46	District 50	0.48	District 49	0.48
District 31	0.48	District 65	0.48	District 59	0.48
District 57	0.48	District 28	0.49	District 64	0.48
District 79	0.48	District 43	0.49	District 67	0.48
District 80	0.48	District 37	0.50	District 88	0.48
District 46	0.49	District 46	0.51	District 85	0.49
District 81	0.49	District 8	0.52	District 18	0.50
District 33	0.50	District 26	0.52	District 81	0.50
District 3	0.51	District 85	0.52	District 87	0.50
District 59	0.52	District 38	0.53	District 2	0.51
District 85	0.54	District 78	0.54	District 28	0.52
District 2	0.55	District 19	0.55	District 78	0.53
District 28	0.55	District 82	0.56	District 16	0.55
District 6	0.57	District 24	0.57	District 82	0.57
District 82	0.57	District 91	0.57	District 12	0.59
District 12	0.58	District 59	0.58	District 31	0.60
District 30	0.60	District 89	0.58	District 54	0.61
District 44	0.60	District 30	0.59	District 63	0.62
District 60	0.61	District 63	0.61	District 46	0.65
Mean	0.37		0.38		0.39
Standard Devialton	0.11		0.10		0.11

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012352

Table 4  
Mean Lower Legislative Chamber District Compactness<sup>a</sup>

State	Mean Dispersion Compactness	Mean Perimeter Compactness
Alabama (1993)	.38	.25
South Carolina (1996)	.36	.24
Georgia (1996)	.39	.29
Louisiana (1991)	.37	.26
North Carolina (1991)	.38	.25
Virginia (1991)	.37	.26
Virginia (2001)	.38	.26

<sup>a</sup> All data are drawn from the records of the author's past work on disticting cases. Data for districts in South Carolina, Georgia and North Carolina were originally secured from Election Data Services. Data for districts in Alabama and Louisiana were calculated by the University of Alabama Cartography Lab. By 1996 several districts in South Carolina and Georgia had been redrawn due to Shaw challenges.



Table 5  
Compactness of 1990s, Enrolled and Miller State Senate Plans  
By District Number

District	Perimeter Compactness			Geographic Dispersion Compactness		
	1990's Plan	Miller Plan	Enrolled Plan	1990's Plan	Miller Plan	Enrolled Plan
District 1	0.22	0.23	0.23	0.50	0.48	0.42
District 2	0.09	0.20	0.29	0.21	0.29	0.45
District 3	0.21	0.25	0.18	0.28	0.28	0.28
District 4	0.30	0.15	0.25	0.39	0.36	0.31
District 5	0.18	0.11	0.15	0.30	0.24	0.35
District 6	0.27	0.30	0.31	0.39	0.45	0.31
District 7	0.21	0.23	0.20	0.32	0.49	0.29
District 8	0.34	0.39	0.41	0.35	0.53	0.29
District 9	0.14	0.12	0.16	0.26	0.28	0.24
District 10	0.19	0.20	0.30	0.29	0.39	0.54
District 11	0.31	0.25	0.39	0.38	0.54	0.48
District 12	0.14	0.11	0.36	0.18	0.21	0.43
District 13	0.18	0.41	0.20	0.24	0.50	0.42
District 14	0.35	0.20	0.32	0.49	0.31	0.44
District 15	0.10	0.22	0.18	0.23	0.38	0.40
District 16	0.09	0.09	0.17	0.33	0.31	0.36
District 17	0.32	0.19	0.34	0.38	0.33	0.49
District 18	0.10	0.37	0.12	0.12	0.49	0.22
District 19	0.43	0.37	0.25	0.37	0.66	0.41
District 20	0.42	0.30	0.23	0.46	0.44	0.32
District 21	0.43	0.32	0.18	0.63	0.48	0.32
District 22	0.17	0.25	0.13	0.26	0.40	0.24
District 23	0.33	0.32	0.21	0.47	0.48	0.44
District 24	0.27	0.12	0.24	0.39	0.23	0.42
District 25	0.31	0.24	0.14	0.35	0.31	0.23
District 26	0.18	0.24	0.28	0.27	0.23	0.43
District 27	0.24	0.30	0.19	0.38	0.46	0.33
District 28	0.13	0.27	0.19	0.14	0.37	0.16
District 29	0.36	0.46	0.27	0.34	0.43	0.31
District 30	0.17	0.17	0.21	0.34	0.34	0.29
District 31	0.32	0.49	0.34	0.43	0.51	0.51
District 32	0.32	0.40	0.33	0.48	0.50	0.38
District 33	0.41	0.28	0.40	0.51	0.32	0.47
District 34	0.21	0.26	0.32	0.29	0.32	0.46
District 35	0.22	0.31	0.24	0.49	0.53	0.49
District 36	0.32	0.32	0.21	0.49	0.49	0.32
District 37	0.19	0.24	0.25	0.36	0.40	0.25
District 38	0.19	0.24	0.14	0.38	0.43	0.21
District 39	0.15	0.26	0.21	0.24	0.45	0.30
District 40	0.18	0.13	0.17	0.20	0.14	0.14
Mean	0.24	0.26	0.24	0.35	0.39	0.35
Standard Deviaton	0.10	0.11	0.08	0.11	0.11	0.10

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012354



Table 6  
Perimeter Compactness of 1990s, Enrolled and Miller State Senate Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Miller Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 16	0.09	District 18	0.12	District 16	0.09
District 2	0.09	District 22	0.13	District 5	0.11
District 15	0.10	District 25	0.14	District 12	0.11
District 18	0.10	District 38	0.14	District 9	0.12
District 28	0.13	District 5	0.15	District 24	0.12
District 12	0.14	District 9	0.16	District 40	0.13
District 9	0.14	District 16	0.17	District 4	0.15
District 39	0.15	District 40	0.17	District 30	0.17
District 22	0.17	District 3	0.18	District 17	0.19
District 30	0.17	District 15	0.18	District 2	0.20
District 13	0.18	District 21	0.18	District 10	0.20
District 26	0.18	District 27	0.19	District 14	0.20
District 40	0.18	District 28	0.19	District 15	0.22
District 5	0.18	District 7	0.20	District 1	0.23
District 10	0.19	District 13	0.20	District 7	0.23
District 37	0.19	District 23	0.21	District 25	0.24
District 38	0.19	District 30	0.21	District 26	0.24
District 3	0.21	District 36	0.21	District 37	0.24
District 34	0.21	District 39	0.21	District 38	0.24
District 7	0.21	District 1	0.23	District 3	0.25
District 1	0.22	District 20	0.23	District 11	0.25
District 35	0.22	District 24	0.24	District 22	0.25
District 27	0.24	District 35	0.24	District 34	0.26
District 24	0.27	District 4	0.25	District 39	0.26
District 6	0.27	District 19	0.25	District 28	0.27
District 4	0.30	District 37	0.25	District 33	0.28
District 11	0.31	District 29	0.27	District 6	0.30
District 25	0.31	District 26	0.28	District 20	0.30
District 17	0.32	District 2	0.29	District 27	0.30
District 31	0.32	District 10	0.30	District 35	0.31
District 32	0.32	District 6	0.31	District 21	0.32
District 36	0.32	District 14	0.32	District 23	0.32
District 23	0.33	District 34	0.32	District 36	0.32
District 8	0.34	District 32	0.33	District 18	0.37
District 14	0.35	District 17	0.34	District 19	0.37
District 29	0.36	District 31	0.34	District 8	0.39
District 33	0.41	District 12	0.36	District 32	0.40
District 20	0.42	District 11	0.39	District 13	0.41
District 19	0.43	District 33	0.40	District 29	0.46
District 21	0.43	District 8	0.41	District 31	0.49
Mean	0.24		0.24		0.26
Standard Deviation	0.10		0.08		0.11

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012355

Table 7  
Geographic Dispersion Compactness of 1990s, Enrolled and Miller State Senate Plans  
(in ascending order)

1990s Plan		Enrolled Plan		Miller Plan	
District	Coefficient	District	Coefficient	District	Coefficient
District 18	0.12	District 40	0.14	District 40	0.14
District 28	0.14	District 28	0.16	District 12	0.21
District 12	0.18	District 38	0.21	District 24	0.23
District 40	0.20	District 18	0.22	District 26	0.23
District 2	0.21	District 25	0.23	District 5	0.24
District 15	0.23	District 9	0.24	District 3	0.28
District 13	0.24	District 22	0.24	District 9	0.28
District 39	0.24	District 37	0.25	District 2	0.29
District 9	0.26	District 3	0.28	District 14	0.31
District 22	0.26	District 7	0.29	District 16	0.31
District 26	0.27	District 8	0.29	District 25	0.31
District 3	0.28	District 30	0.29	District 33	0.32
District 10	0.29	District 39	0.30	District 34	0.32
District 34	0.29	District 4	0.31	District 17	0.33
District 5	0.30	District 6	0.31	District 30	0.34
District 7	0.32	District 29	0.31	District 4	0.36
District 16	0.33	District 20	0.32	District 28	0.37
District 29	0.34	District 21	0.32	District 15	0.38
District 30	0.34	District 36	0.32	District 10	0.39
District 8	0.35	District 27	0.33	District 22	0.40
District 25	0.35	District 5	0.35	District 37	0.40
District 37	0.36	District 16	0.36	District 29	0.43
District 19	0.37	District 32	0.38	District 38	0.43
District 11	0.38	District 15	0.40	District 20	0.44
District 17	0.38	District 19	0.41	District 6	0.45
District 27	0.38	District 1	0.42	District 39	0.45
District 38	0.38	District 13	0.42	District 27	0.46
District 4	0.39	District 24	0.42	District 1	0.48
District 6	0.39	District 12	0.43	District 21	0.48
District 24	0.39	District 26	0.43	District 23	0.48
District 31	0.43	District 14	0.44	District 7	0.49
District 20	0.46	District 23	0.44	District 18	0.49
District 23	0.47	District 2	0.45	District 36	0.49
District 32	0.48	District 34	0.46	District 13	0.50
District 14	0.49	District 33	0.47	District 32	0.50
District 35	0.49	District 11	0.48	District 31	0.51
District 36	0.49	District 17	0.49	District 8	0.53
District 1	0.50	District 35	0.49	District 35	0.53
District 33	0.51	District 31	0.51	District 11	0.54
District 21	0.63	District 10	0.54	District 19	0.66
Mean	0.35		0.35		0.39
Standard Devialton	0.11		0.10		0.11

Source: Calculated by the University of Alabama Cartographic Laboratory

HOD012356

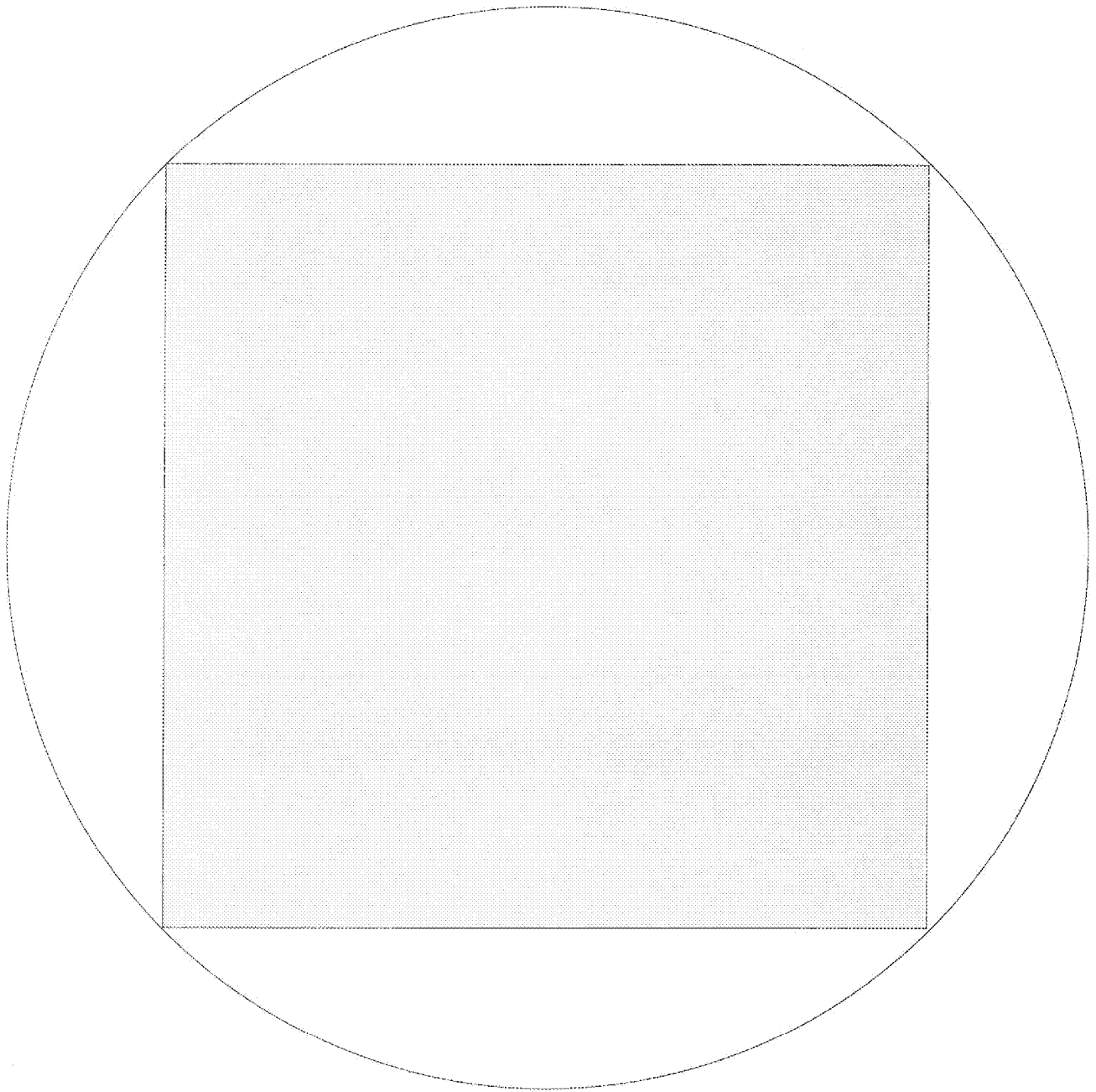
Table 8

Mean State Senate District Compactness<sup>a</sup>

State	Mean Dispersion Compactness	Mean Perimeter Compactness
Alabama (1993)	.37	.19
South Carolina (1996)	.36	.18
Georgia (1996)	.41	.29
North Carolina (1991)	.38	.25
Virginia (1991)	.35	.24
Virginia (2001)	.35	.24

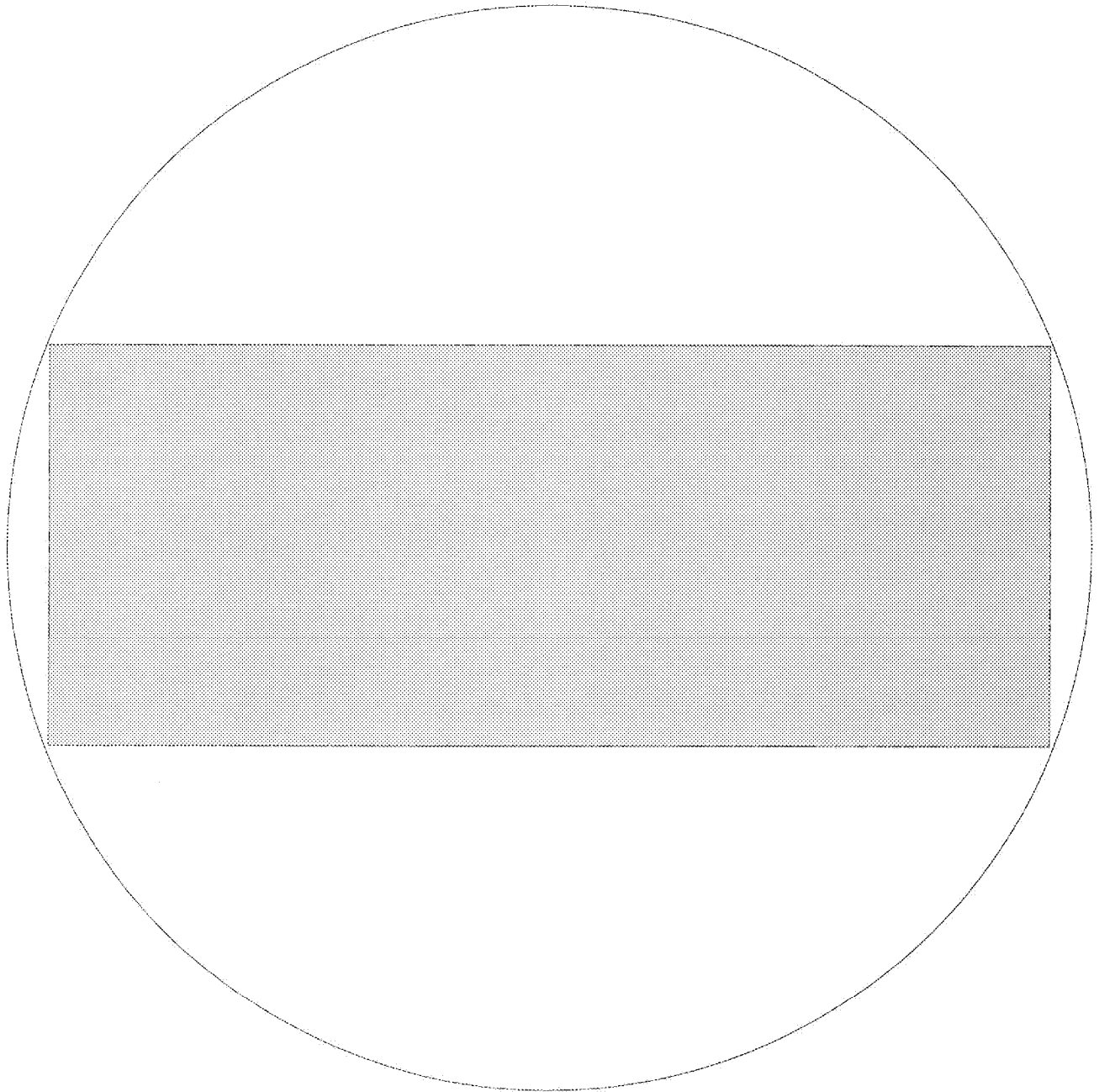
<sup>a</sup> All data are drawn from the records of the author's past work on districting cases. Data for districts in South Carolina, Georgia and North Carolina were originally secured from Election Data Services. Data for Alabama and Virginia were calculated by the University of Alabama Cartography Laboratory. By 1996 several districts in South Carolina and Georgia had been redrawn due to successful *Shaw* challenges.

Figure 1 - Compactness of a Square



Dispersion Compactness = .640  
Perimeter Compactness = .785

Figure 2 - Compactness of a Rectangle



Dispersion Compactness = .431

Perimeter Compactness = .641

Figure 3 - State of Virginia



Compactness Dispersion = 0.229  
Compactness Perimeter = 0.163



Figure 4 - City of Newport News



Compactness Dispersion = 0.219  
Compactness Perimeter = 0.307

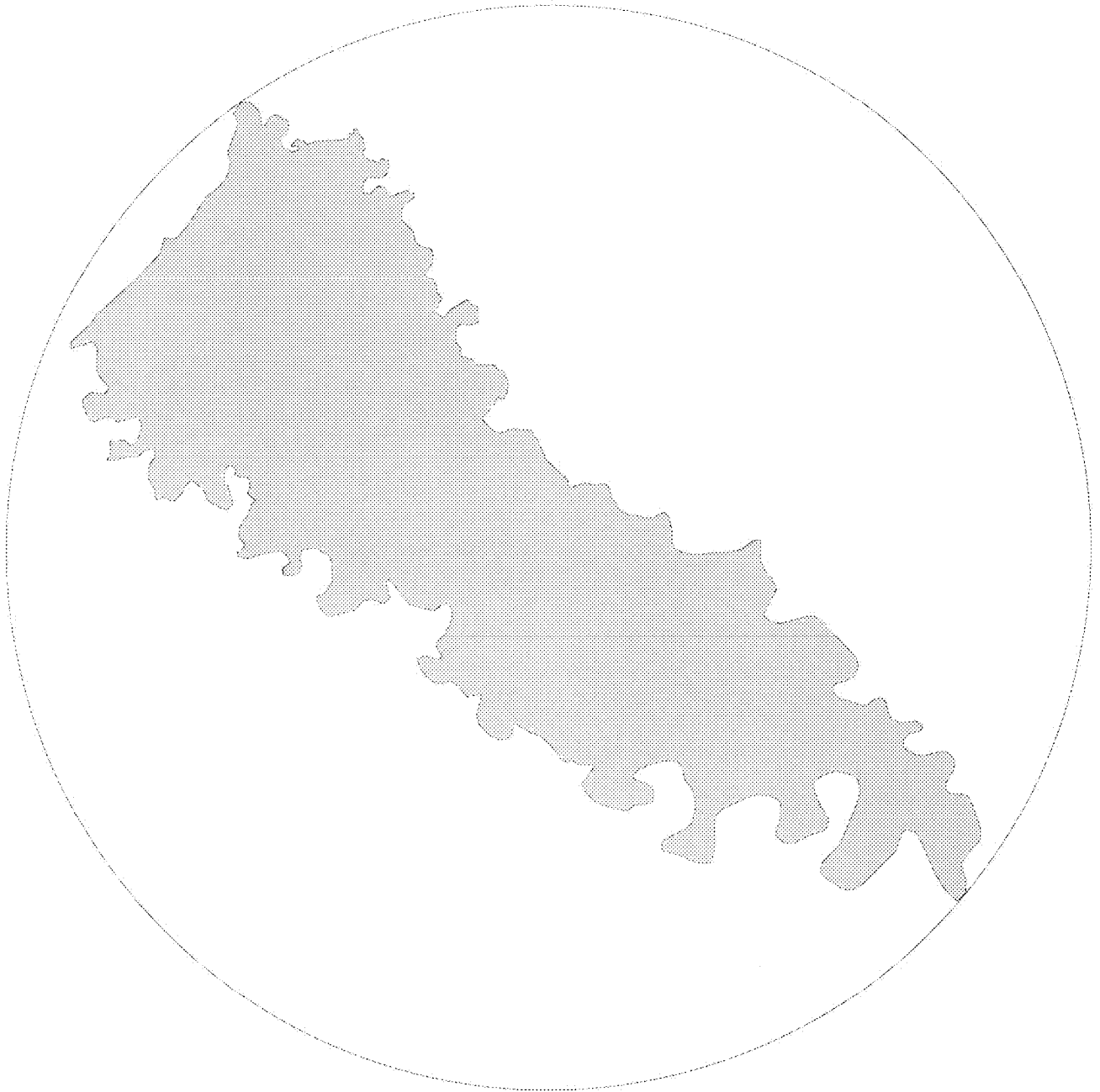
Figure 5 - Lee County



Compactness Dispersion = 0.204  
Compactness Perimeter = 0.352

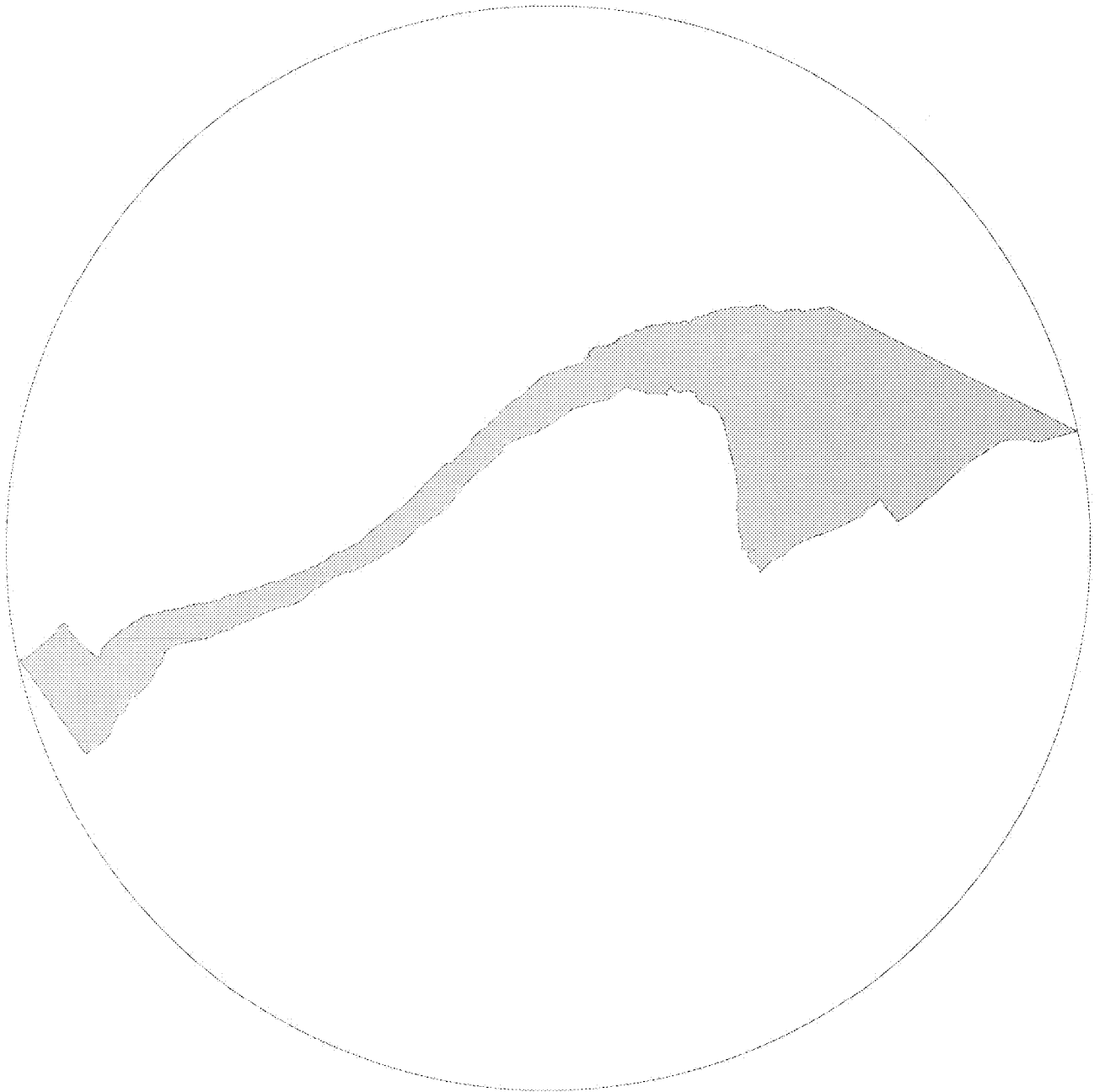


Figure 6 - King William County



Compactness Dispersion = 0.267  
Compactness Perimeter = 0.159

Figure 7 - Bennett Springs Voting Precinct  
(Roanoke County)



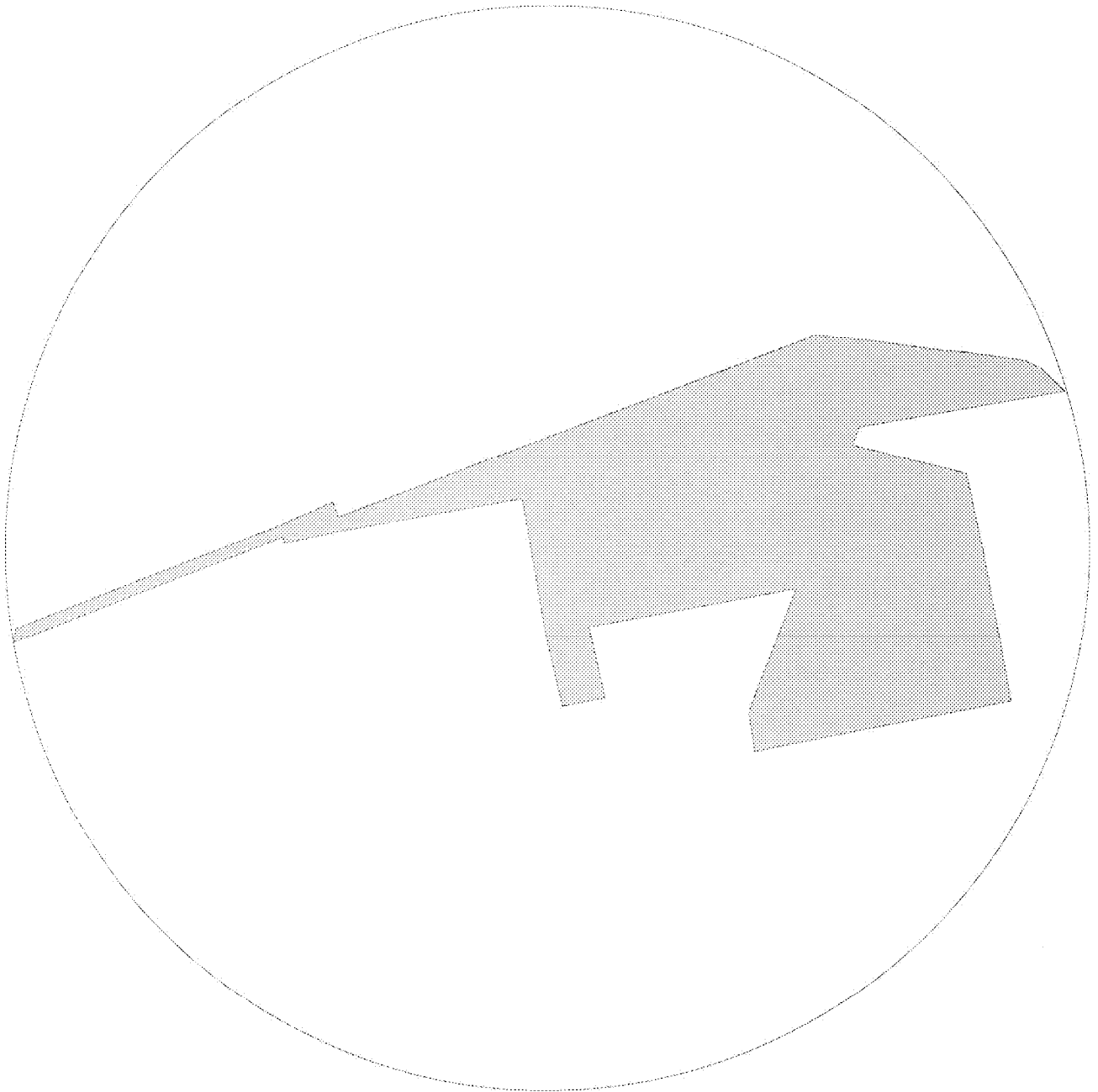
Compactness Dispersion = 0.093  
Compactness Perimeter = 0.144

Figure 8 - Scottsburg Voting Precinct  
(Halifax County)



Compactness Dispersion = 0.203  
Compactness Perimeter = 0.255

Figure 9 - Sunray I Voting Precinct  
(City of Chesapeake)



Compactness Dispersion = 0.160  
Compactness Perimeter = 0.178

Figure 10 - Virginia State Assembly Enrolled Plan

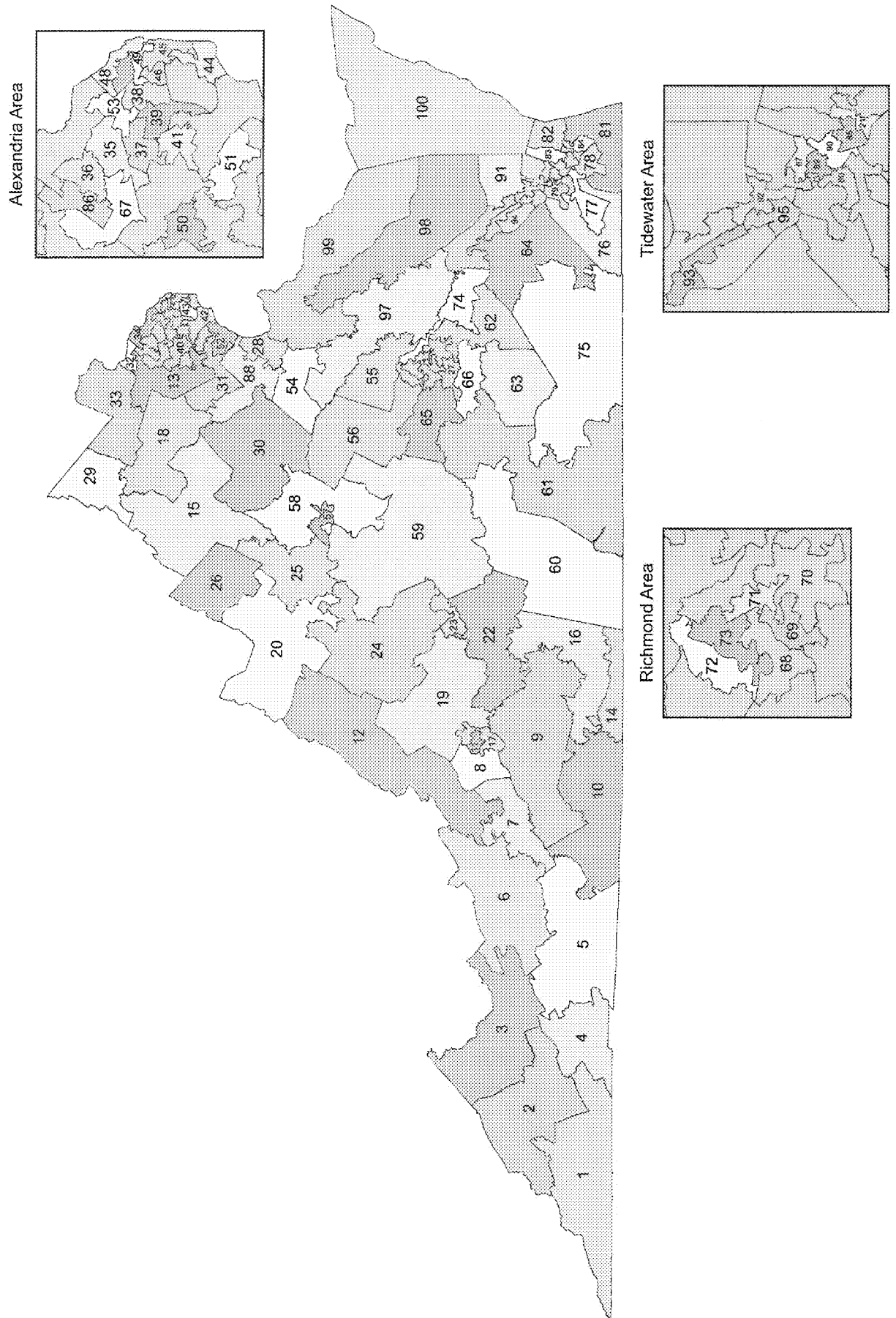




Figure 11 - Virginia State Assembly 1990's Plan

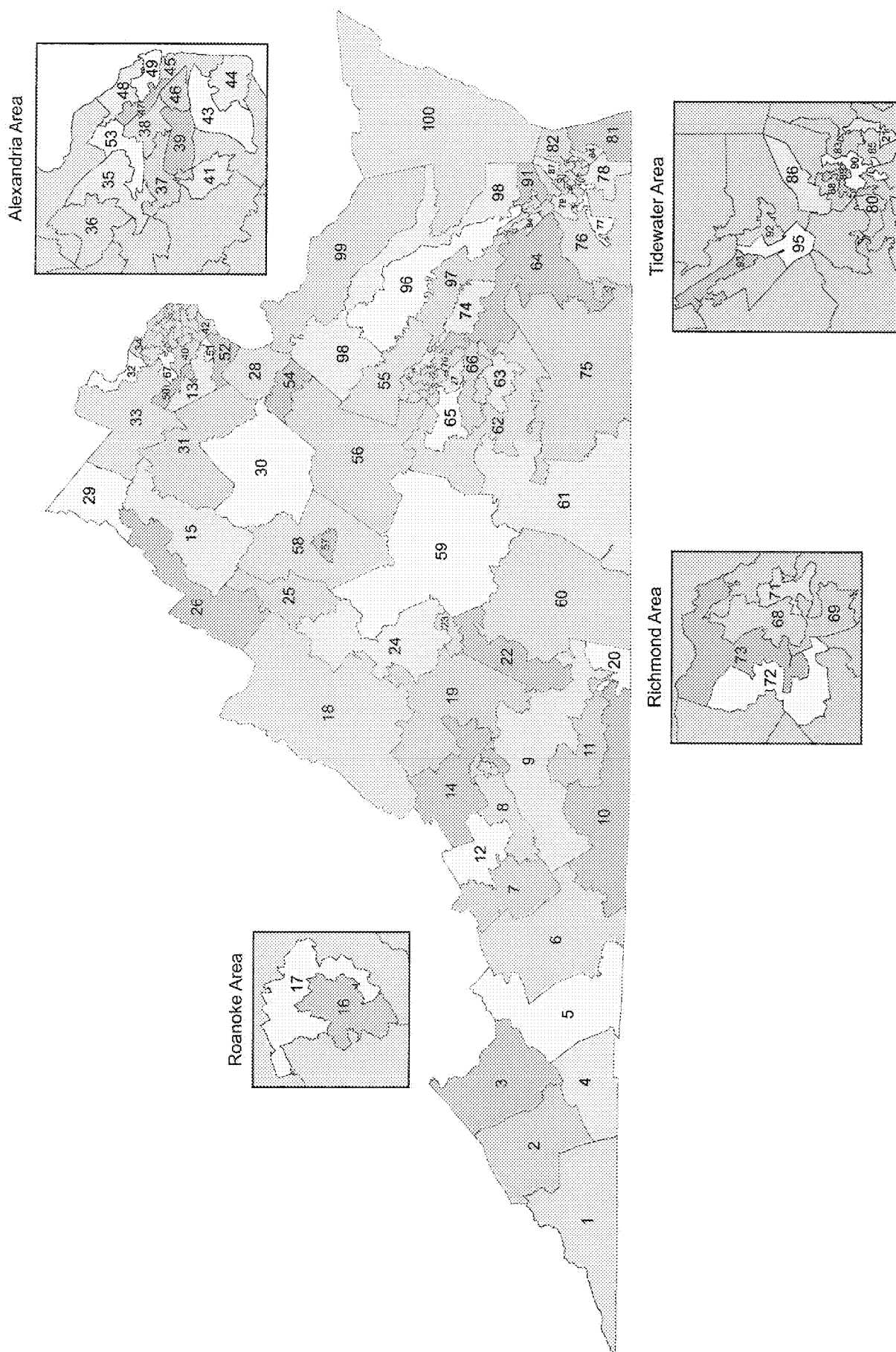


Figure 12 - Virginia State Assembly Robinson Plan

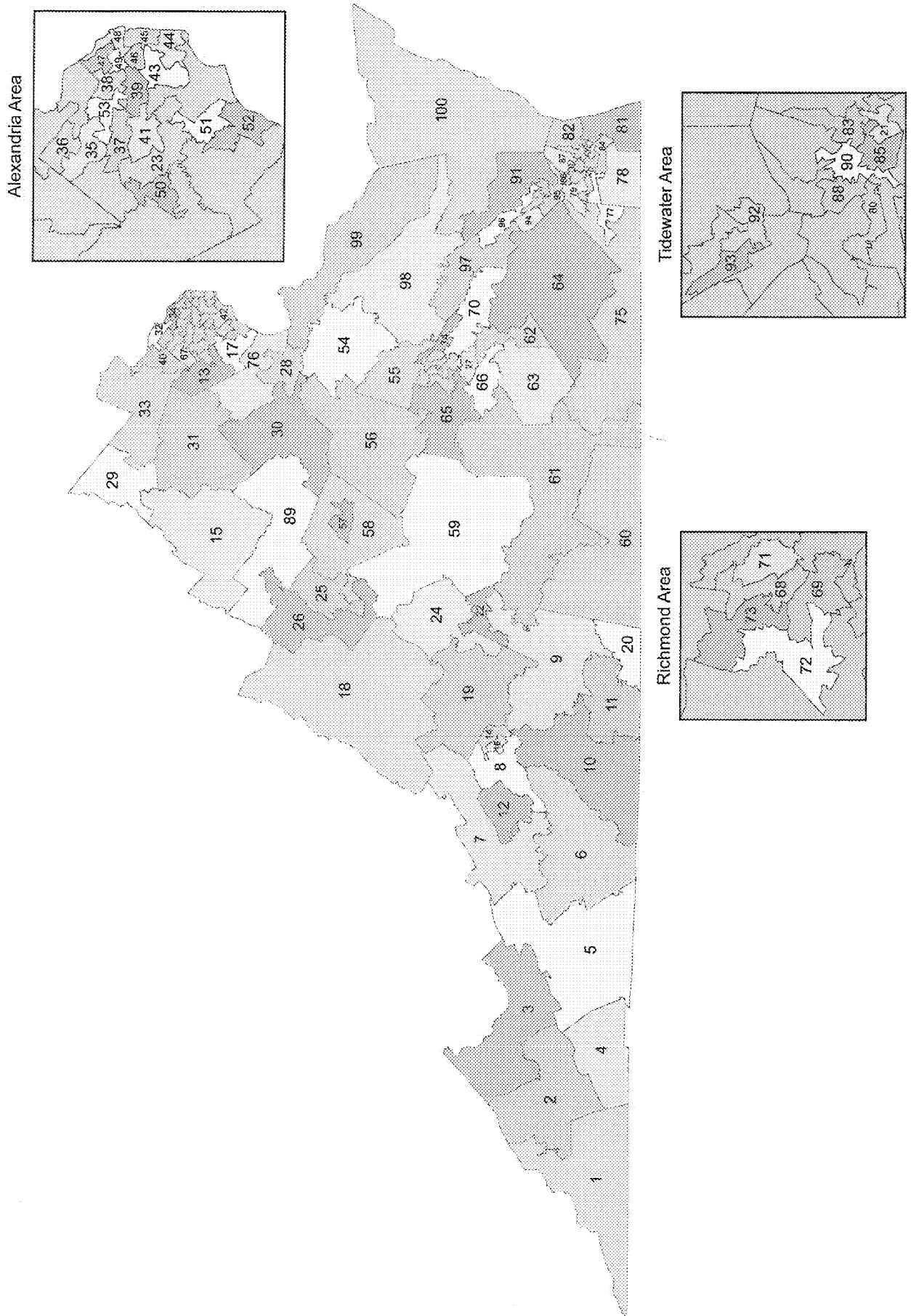


Figure 13 - Virginia State Senate Enrolled Plan

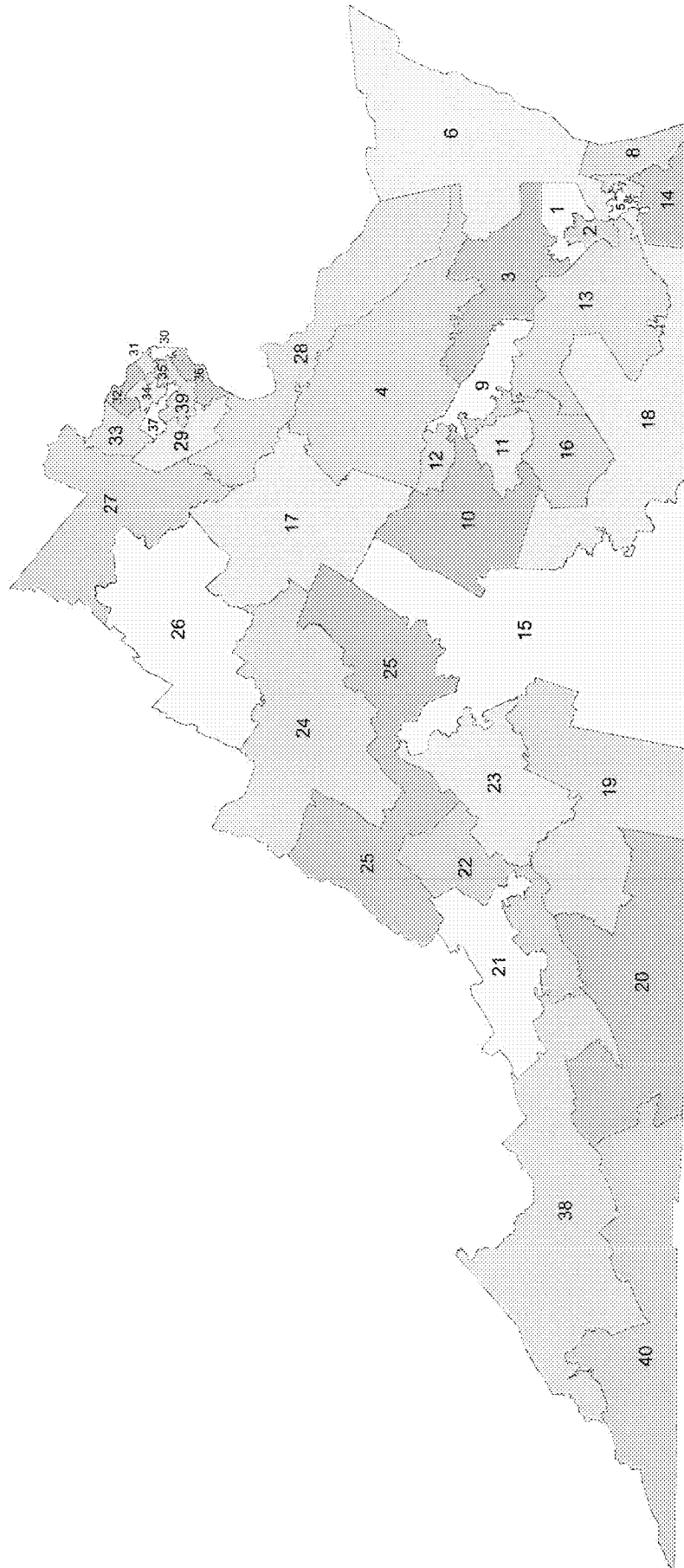




Figure 14 - Virginia State Senate 1990's Plan

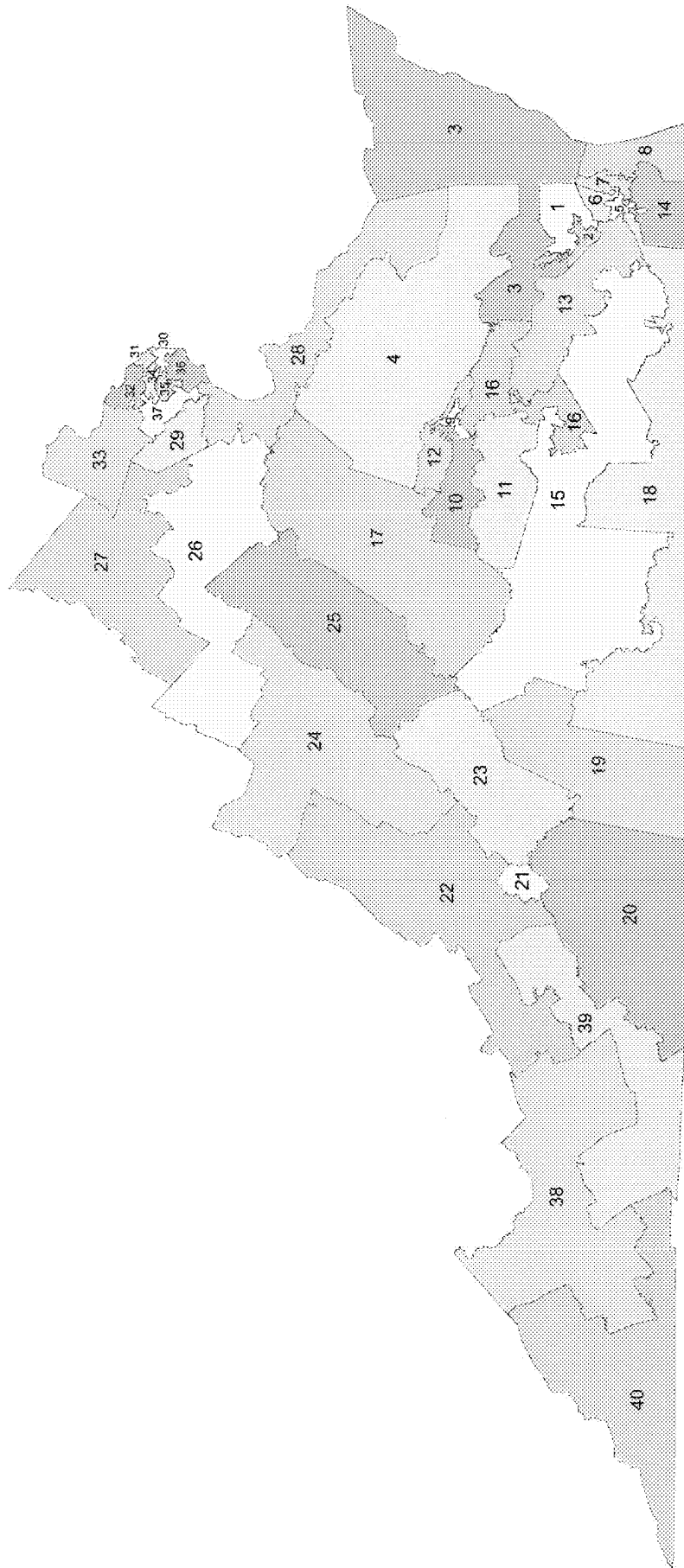


Figure 15 - Virginia State Senate Miller Plan

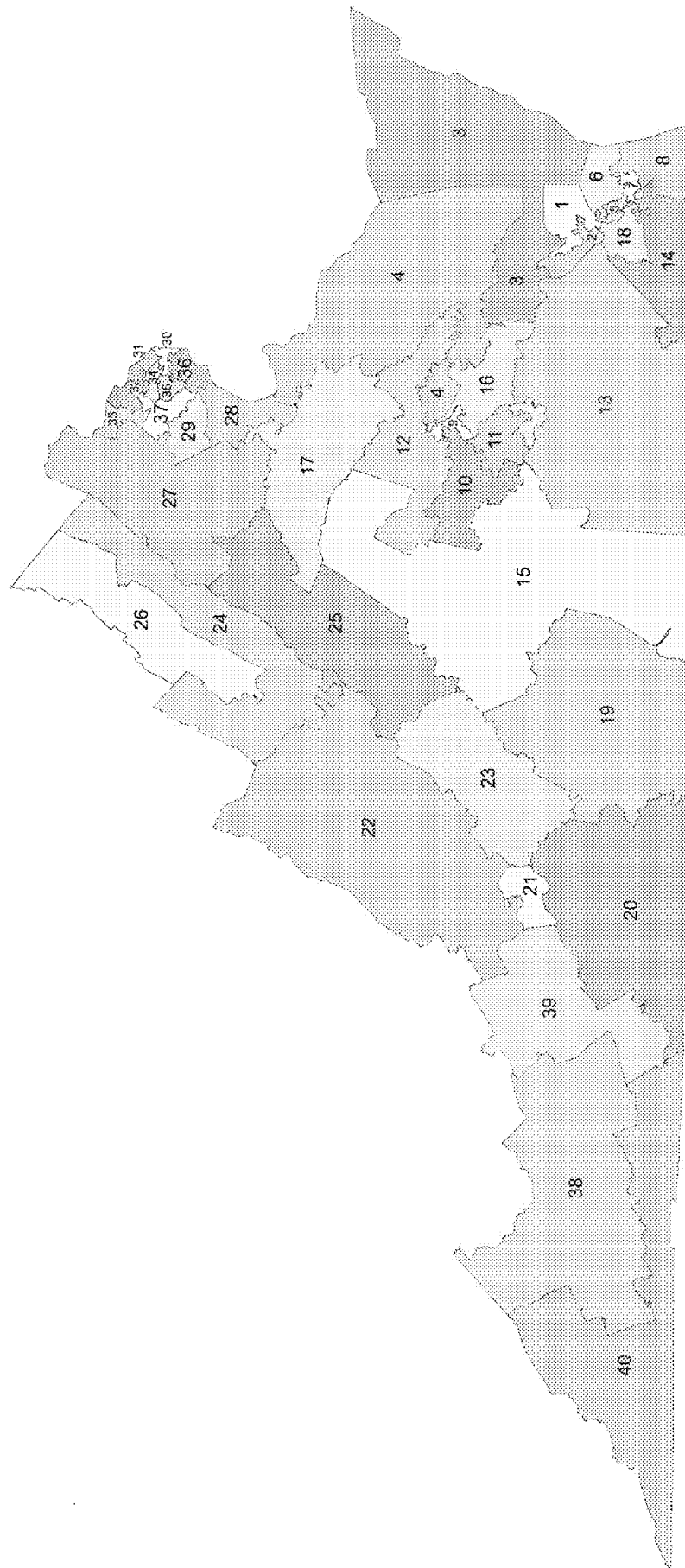


Exhibit M

Exhibit M

**Virginia Redistricting:**

**Report on Factual and Statistical Issues Raised in  
"Bill of Complaint" filed by Douglas West, et al.  
With Comments on  
Expert Reports by Drs. David Lublin and Alan Lichtman**

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August 31, 2001

## Table of Contents

Qualifications.	1
Introduction.	4
Comments on Lublin Report.	6
Table 1: Compactness of House Districts	8
Table 2: Compactness of Senate Districts	11
Comments on Lichtman Reports on Compactness.	13
Minorities Must Not Be Lumped Together.	15
What Is "Packing"?	16
Dr. Lichtman's Packing Analysis Is Fatally Flawed.	19
Are "Influence Districts" Relevant Here?	22
Table 3: "Influence Districts".	23
When Racial Polarization Obtains, Are Majority-Black Districts Packed?	26
Table 4: Election History, Majority-Black House Districts	27
Are Black Candidates Ever the Choice of the White Community?	30
Are White Candidates Ever the Choice of the Black Community?	31
How Do Whites Behave in House Districts They Do Not Expect to Win?	34
Table 5: Black-White Contest, House District 92, 1999.	35
Table 6: Analysis of Black-White Contests, House Districts	
Whites Did Not Expect To Win.	37
How Do Whites Behave in Districts They Expect to Win?	38
Table 7: Analysis of Black-White Contests, Majority-Black	
House Districts Where Whites Hoped To Win.	40
How Do Blacks Fare in Majority-Black Districts When Whites Hope to Win?	41
Are White Candidates the Choice of the Black Community (Revisited)?	46
Can Some Majority-Black Districts Now Be Considered Packed?	46
What Proportion Black Is Required for a Tossup House District?	48
Would a District 49.9% Black Be Unwinnable? Would a District 55%	
Black Be Packed?	49
How Do Black Candidates Fare in Majority-White House Districts?	50
Table 8: Election History, Black-White Contests,	
Majority-White House Districts.	54
How Does Political Behavior Differ in Majority-White House Districts?	55
Table 9: Analysis of Black-White Contests,	
Majority-White House Districts.	56
What Proportion Black Is Required for a Tossup House District,	
Given the Political Behavior in Majority White Districts?	57
Does HB-2 Give the Black Community a Fair Chance?	57
Can White Crossover Votes Ensure that Blacks Can Elect House Candidates?	58
Do Election Results In Majority-Black Districts Indicate Packing in SB-1?	60
Table 10: Election History, Majority-Black Senate Districts.	61
Table 11: Analysis of Black-White Contests,	
Majority-Black Senate Districts.	62
Table 12: Analysis of Black-White Contests in Senate Districts	
Where Whites Hoped to Win.	63
What Proportion Black Is Required for a Tossup Senate District	
When Whites Have Hopes of Victory?	65
Do the Proposed Legislative Redistricting Plans Show Sexism?	66
Are CH-1 and SB-1 "Segregative"?	67

### Qualifications

I hold a doctorate in sociology from Harvard University, with specialization in race relations and social theory. From 1971 to the present I have testified as a statistician and social scientist in a variety of cases relating to the voting rights of racial minorities. My findings have been cited in substance and/or by name by federal district courts, the Fifth Circuit Court of Appeals, and United States Supreme Court. These cases have resulted in fairer election practices and/or district lines in state legislatures, counties, cities, towns, and Congressional districts.

In 1971, I testified regarding racial bloc voting and party representation by race in Mississippi, for the American Civil Liberties Union (national office), in *National Democratic Party v. Riddell*. This case may have been the first voting rights case to use correlation and regression techniques. In a later Mississippi case, I introduced ecological regression into voting rights litigation. I also developed and introduced overlapping percentages analysis. These techniques have been relied on by expert witnesses in Thornberg and the series of cases leading up to and stemming from Thornberg. My vita shows more than fifty voting rights cases in which I testified, gave depositions, and/or advised counsel as an expert witness.

My publications in the area of voting rights include:

- 1981, "Continuing Obstacles to Black Electoral Success in Mississippi," *Civil Rights Research Review*, 9 #3-4, 24-38, 46.
- 1982, "Statement and Testimony on Extending the 1965 Voting Rights Act," in *Hearings on the 1965 Voting Rights Act Extension*, United States House of Representatives, Committee on the Judiciary (Washington, D. C., GPO).
- 1982, *Social Science in the Courtroom: Statistical Techniques and Research Methods for Winning Class-Action Suits* (Lexington: D.C. Heath), particularly chapter 14.
- 1985, "Racial Bloc Voting Measures are Dependable", *Voting Rights Review*, 1 #4 (August), 1-2.
- 1988, Review of Abigail Thernstrom, *Whose Votes Count?* and Margaret

Edds, *Free At Last*, in *Contemporary Sociology*, 17 #4 (July), 494-495.

– 1989, "Recent Developments in Methods Used in Vote Dilution Litigation," with Bernard Grofman, *The Urban Lawyer*, 21 #3 (Summer), 589-604.

– 1990, "Racial Bloc Voting and Political Mobilization in South Carolina," *The Review of Black Political Economy*, 19 #1 (Summer), 23-37.

– 1990, "Sand in the Bearings: Mistaken Criticisms of Ecological Regression," *The Urban Lawyer*, 22 #3 (Summer), 503-513.

– 1993, "It Ain't Broke, So Don't Fix It: The Legal and Factual Importance of Recent Attacks on Methods Used in Vote Dilution Litigation," with co-authors (*San Francisco Law Review*, 3 #4 (summer), 737-780.

– 1993, "Levels of Political Mobilization and Racial Bloc Voting Among Latinos, Anglos, African Americans, and Asian Americans in New York City," *Chicano/Latino Law Review*, 13 (summer), 38-73.

– 1995, "South Carolina," with senior co-author Orville Vernon Burton and co-authors Terence Finnegan and Peyton McCrarey, in Chandler Davidson and Bernard Grofman, eds., The Quiet Revolution (Princeton: Princeton University Press).

#### Introduction.

On May 18, 2001, I was asked by Virginia Asst. Attorney General Greg Lucyk to analyze Virginia election data to determine if the African American community had a reasonable chance to elect candidates of its choice in various proposed Virginia House of Delegates and Virginia State Senate districts. Having served as an expert witness or consultant in more than fifty voting rights cases across the United States since 1971, including in Virginia in 1991, I agreed to undertake this task. Accordingly, I asked for election returns from as many elections as possible over the last ten years, including all black-white contests for the state legislature. I analyzed these elections to determine the levels of political mobilization and racial bloc voting among white voters and black voters.

Black-white contests are of special interest because social scientists have long held, the courts have agreed (*Thornburg v. Gingles*), and I have

found in my prior analyses, including in Virginia, that African American voters usually prefer African American candidates who are members of their community, know their interests and issues, and are reachable through community organizations and connections. Elections for the state legislature are of special interest because these contests are for the office in question.

Sometimes voters behave somewhat differently when voting for very different offices, such as U.S. President or local county auditor.

I have also found that voters may behave differently when they believe they have a good opportunity to elect a candidate of their choice, compared to when they don't. For example, black voters who live in a majority white county but in a majority black Virginia House district may show lower turnout, lower "rollon" (the term "rollon" will be used as shorthand for "votes cast for this office"), and lower racial bloc voting for a countywide black candidate whom they believe is unlikely to win, compared to a legislative black candidate whom they believe is more likely to win. Conversely, white voters may show a high degree of political mobilization and racial bloc voting in favor of white candidates when they think they have a good chance to elect the candidates of their choice; when white voters are in majority-black districts with an incumbent black office-holder, they often show much lower turnout, rollon, and racial bloc voting. Social scientists call the political impact of believing that one's racial or ethnic group has little hope to elect the candidate of its choice the "chilling effect." I have termed its opposite – the energizing impact of believing that one's racial or ethnic group can elect the candidate of its choice – the "warming effect." We shall see that both of these effects are very much in evidence in Virginia legislative elections.<sup>1</sup>

---

<sup>1</sup>Claudine Gay, Professor of Political Science at Stanford University, has recently found similar warming effects among Latinos and among African Americans in California when either group makes up a majority of a Congressional district. She found chilling effects among Latinos and African Americans when they are in the minority. She also found that Anglos in majority-Latino districts show high political mobilization, "possibly reflecting an appreciation for the potential electoral influence that could be wielded by a highly mobilized minority in the context of high Latino noncitizenship and relative youth" – in other words, where Anglos felt they had some hope of winning. See Gay, "The Effect of Minority Districts and Minority



Recently I have read the expert reports by Dr. David Lublin and Dr. Allan Lichtman and the Bill of Complaint in West et al. v. Gilmore et al. I also read earlier reports submitted to the United States Department of Justice by Dr. Lichtman. In this report I will respond to points made by Drs. Lublin and Lichtman and in the Complaint.

Comments on David Lublin Report.

Dr. David Lublin makes various comments about compactness, using two frequently used measures. These are perfectly acceptable measures, but what Dr. Lublin does with the results is quite strange. Probably the first thing a social scientist would do when examining Dr. Lublin's Tables 1 and 2, his listings of the House and Senate districts arranged by compactness, would be to see if there are consistent differences between the majority-black districts and other districts. If, as alleged in the complaint, the majority-black districts have been drawn to be particularly irregular – elongated, "bug-splat" shaped, and "bizarrely-shaped" were among the allegations – then they should be significantly less compact than "regular" districts.<sup>2</sup>

Surprisingly, Dr. Lublin does not compare the majority-black districts and other districts in any way. Therefore I did, beginning with the House Plan.

Table 1 shows the mean and median scores on the Polsby-Popper and Reock measures for the majority-black districts and other districts for the Virginia Assembly. There is a very small difference on the Polsby-Popper means:

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Representation on Political Participation in California (San Francisco: Public Policy Institute, 2001; ppic.org/publications website).

<sup>2</sup>To be sure, some irregularities in majority black districts, such as serious indentations, would create complementary irregularities in adjoining districts, thus decreasing their compactness. However, this is not true for most irregularities, such as "arms" or elongation or "claws." Moreover, any effects in adjoining districts that are traceable to irregularities in majority black districts would be minor, compared to the large number of other districts that exist and do not even touch majority black districts, hence cannot be affected by them.

"other" districts averaged .266 in compactness, while majority-black districts averaged .23. The difference, .036, is obviously minuscule on a scale with values that range from .10 to .59.

---

Table 1: Compactness of House Districts.

<u>Measure</u>	<u>Majority-Black Districts</u>	<u>Other Districts</u>	<u>Difference</u>
Polsby-Popper			
Mean	.23	.266	.036
Median	.21	.25	.04
Reock			
Mean	.37	.39	.02
Median	.37	.37	.00

---

Because means can be unduly influenced by very large or very small values, Table 1 also shows the median level of compactness on the Polsby-Popper measure for the majority-black districts and other districts. Again, there is a very small difference: other districts averaged .25 in compactness, while majority-black districts averaged .21.

Since the difference between the medians, .04, was slightly larger, hence slightly more helpful to the complainants, I used that difference and assessed whether it was "significant" or "due to chance." I used the "test for the significance of the difference between two medians" as described in Sidney Siegel's classic Nonparametric Statistics for the Behavioral Sciences.<sup>3</sup> In this test, as in most significance tests, the analyst proposes a "null hypothesis": "There is no significant difference between the majority-black districts and the other districts in compactness. A difference of .04 might likely happen by chance." The "alternative hypothesis" is, "There is a significant difference between the majority-black districts and the other districts in compactness. The majority-black districts are significantly less compact than the other districts. The difference could not likely be due to chance."

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<sup>3</sup>NY: McGraw-Hill, 1956, 111-16.

Applying the test for the significance of the difference between two medians revealed that the difference could indeed be due to chance: a difference of .04 or larger would happen about 25% of the time due to chance.

To accept the alternative hypothesis, a social scientist requires that the null hypothesis happen no more than 5% of the time due to chance; indeed, social scientists like to find that the null hypothesis would happen just 1% of the time due to chance, a more rigorous standard. Here, since the null hypothesis might happen 25% of the time due to chance, we cannot reject it. We must conclude that there is no significant difference between the compactness of the majority-black districts and the other districts on the Polsby-Popper measure.

On the other measure of compactness used by Dr. Lublin, the Reock measure, the differences between the majority-black districts and other districts are obviously trivial: .02 for the means and no difference at all for the medians. Therefore I did not bother with a significance test; any social scientist would conclude at once that there is no significant difference between the compactness of the majority-black districts and the other districts.

It might be claimed that although most majority-black districts are as compact as most other districts, a few majority-black districts are grossly uncompact. There is a statistical test for assessing such a claim: the Mann-Whitney U Test, again presented in Siegel's Nonparametric Statistics for the Behavioral Sciences.<sup>4</sup> This test is more precise than the difference between two means or the difference between two medians, because it takes into account the compactness ranking of every district, helpfully supplied in Dr. Lublin's Table 1. The analyst counts the number of "other" districts that are less compact than each of the 13 majority-black districts to calculate "U" and then uses a formula to calculate the value of "z," a statistic which in turn is looked up in a standard z-table found in the back of any statistics book.

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<sup>4</sup>NY: McGraw-Hill, 1956, 116-27.

Performing this analysis for the data in Dr. Lublin's Table 1, I found a U value of 493, which turns out to be a relatively small value.<sup>5</sup> The "z" statistic = .74, which would happen about 25% of the time due to chance. Thus the Mann-Whitney U Test confirms the test for the significance of the difference between two medians: we must reject the alternate hypothesis. The majority-black districts are not significantly less compact than the other districts.

Thus we must conclude that race has not been shown to be the predominant factor in drawing the majority-black Assembly districts, or at least any racial considerations did not result in districts that are significantly less compact than other districts.

Turning to the Virginia Senate Plan, again, Dr. Lublin did not compare the majority-black districts and other districts in any way, so I did. Table 2 shows the mean and median scores on the Polsby-Popper and Reock measures for the majority-black Senate districts and "other" districts. As with the Assembly, there is a very small mean difference on the Polsby-Popper: other districts averaged .25 in compactness while majority-black districts averaged .18. The difference, .07, is small. The median difference, .08, is slightly larger.

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<sup>5</sup>This point can readily be grasped when one realizes that the least compact majority-black district, #74, generated a U of 87 all by itself: 87 "other" districts are more compact than #74. If other majority-black districts were systematically uncompact, they would generate similarly high U values; if these U values averaged, say, 70, then 12 of them plus #74 would total 927, far higher than 493. Such a U value would result in  $z = 3.7$ , which would happen less than one time in a thousand by chance.

Table 2: Compactness of Senate Districts.

<u>Measure</u>	<u>Majority-Black Districts</u>	<u>Other Districts</u>	<u>Difference</u>
Polsby-Popper			
Mean	.18	.25	.07
Median	.16	.24	.08
Reock			
Mean	.32	.36	.03
Median	.35	.33	-.02

I did not bother to apply the test for the significance of the difference between two medians because the result would obviously not reach significance.

This is obvious because the sample sizes are smaller (45 "other" districts and just five majority-black districts), and statistical significance goes down rapidly as sample size decreases. (This reflects the familiar fact that if one flips a coin 10 times and gets 7 heads, one is not sure the coin is biased, but if one flips a coin 100 times and gets 70 heads, bias seems much more likely.)

I did compute the results of the Mann-Whitney U Test, because four of the majority-black districts ranked uncompact on the Polsby-Popper measure.  $U = 142$ ;  $z = .64$ , which would happen about 26% of the time due to chance. Again we must reject the alternate hypothesis. The majority-black Senate districts are not significantly less compact than the other districts.

Turning to the Reock measure, there are obviously no differences, not even insignificant differences, between the majority-black Senate districts and the "other" districts. The mean for the majority-black Senate districts is .32; for the other districts .36; the difference is a trivial .03. The median for the majority-black Senate districts is .35; for the other districts .33; the difference is .02 in the "wrong direction," with the majority-black Senate districts proving to be more compact (albeit by an insignificant amount).

Again, we must conclude that race has not been shown to be the

predominant factor in drawing the majority-black Senate districts, or at least any racial considerations did not result in districts that are significantly less compact than other districts.

Regarding both houses of the legislature, instead of comparing majority-black districts to other districts in any systematic way, Dr. Lublin merely describes various districts, beginning with House District 74. His selection of districts to describe does not stem from the data, but from the lawsuit. For example, he does not describe the least compact districts according to the Polsby-Popper measure -- perhaps those that do not even reach .20. If he did that, he would describe 27 districts, just four of which are majority-black. While the four majority-black districts have arms and elongations decreasing their compactness as measured by Polsby-Popper, so do the 23 other uncompact districts. But the 23 other districts go unmentioned, except for two (#62 and #64) in italics; these "are non-majority-minority districts that the plaintiffs are challenging as insufficiently compact under Virginia law," in Dr. Lublin's words. In compactness, according to the Polsby-Popper measure, District 62 ranks 91st and District 64 ranks 77th. Dr. Lublin does not comment on District 16, which ranks 99th in compactness, District 97, 98th in compactness, District 17, 97th in compactness, and so on. Instead, he picks on districts ranked 91st and 77th. Apparently plaintiffs have chosen to contest districts they do not like, so Dr. Lublin comments on those districts. Again, this work is not systematic; it does not compare all districts; it does not compare all uncompact districts; it is simply not good social science.

Comments on Allan Lichtman Reports, Sections on Compactness.

Dr. Lichtman's "Report on the Use of Race for Packing Minorities in Virginia State House Districts" begins, after a statement of qualifications, by describing the shapes of various majority-black districts. For a dozen pages (4-15) he continues, always arguing that the districts could have and implicitly should have included adjacent precincts that were overwhelmingly white in voting age population (VAP). These descriptions suffer from the same

problems noted in Dr. Lublin's report: Dr. Lichtman has not compared the majority-black districts to the other districts in any systematic way. Even in his discursive remarks, he has not selected the least compact districts to describe but has merely chosen to characterize those districts that plaintiffs wish to challenge. Thus his analysis, like Dr. Lublin's, is driven not by the facts but by the lawsuit.

At no point in these pages does Dr. Lichtman present any claims that African Americans might be able to elect candidates of their choice in the districts that his suggested changes would have created. And at no point does Dr. Lichtman present any evidence based on past political behavior in contests for the Virginia Legislature to back up such claims. Indeed, Dr. Lichtman's reports are unique in my experience in that they are not based on any analyses of recent electoral contests. In every redistricting case in which I have participated and in all cases I have read about, to the best of my recollection, experts in voting rights cases have engaged in analyses of recent electoral contests.

Recent political behavior offers the best information for predicting future political behavior, after all. Sometimes this truth is summarized in the maxim "The past is prologue." In dozens of voting rights cases, courts have held that the racial composition of districts is key to whether these districts provide African American voters with a reasonable chance to elect candidates of their choice, when and only when the white community shows a pattern of racial bloc voting. Experts then look to recent contests to assess whether and to what degree whites show racial bloc voting, and also to assess whether and to what degree the African American community prefers different candidates. (This is often called "minority voter cohesion.") On the basis of recent electoral behavior, experts then estimate the proportion black that a district must be in VAP, to provide African American voters with a reasonable opportunity to elect candidates of their choice.

On pages 15-22, Dr. Lichtman presents what he calls "Detailed Analysis:



Retrogression and Vote Dilution," but this section is misnamed. It contains no "Detailed Analysis." Indeed, it presents no election analyses at all. On page 15, Dr. Lichtman notes that the seven majority-black districts which "are studied in this report" are "greater than 55% African American in VAP." He then alleges that such "heavy concentrations of African Americans and minorities results [sic] in the packing of districts at levels well beyond what is necessary to avoid retrogression or minority vote dilution." He makes this allegation by pure assertion, backed by no election analyses! Election returns from the seven majority-black districts are never "studied in this report."

Minorities Must Not Be Lumped Together.

Before going further, I must note an additional procedural difference that sets Dr. Lichtman's work apart from my own: he often lumps together three or four different racial/ethnic minorities (African Americans, Asian Americans, Native Americans, and Latinos or Hispanics, who may be of any race). Thus he frequently reports the proportion of the total population or the VAP (voting age population) that is minority, rather than the proportion that is African American. On page 15 he notes, for example, "All 7 districts [in the 2001 House redistricting plan] are greater than 58% in minority voting age population." I know no reason to lump these groups together a priori. Whether the four groups express similar interests in their voting patterns is an empirical question to be investigated.

If one were to make an a priori assumption, there are reasons to lump these groups with white voters rather than with black voters. For example, Asian Americans, Native Americans, and Hispanics are much more likely than African Americans to live dispersed among whites, such as in the suburbs of northern Virginia. Nationally and surely in Virginia, Asian Americans, Native Americans, and Hispanics are much more likely than African Americans to marry whites. In addition, Asian Americans and Hispanics differ from African Americans in that they are far more likely to be recent immigrants, hence more likely to face issues of language and citizenship and less likely to be

registered to vote. In these ways, they more closely resemble recent white ethnic immigrants than they do African Americans.

Dr. Lichtman seems to recognize these facts of political life in his footnote 3 (House Plan report), where he lumps together non-blacks rather than "minorities." It would be more appropriate to exclude Asian Americans, Native Americans, and Latinos, who are not numerous anyway in most of these districts, and concentrate on white and black voters. Hence the appropriate proportion to examine is the percentage African Americans are of the Voting Age Population (VAP), not the percentage all minorities are among the total population or the VAP.<sup>6</sup>

#### What Is "Packing"?

The complaint claims, "The General Assembly's goal was to pack as many minority voters as possible into only a few districts." In fact, the new House districts in "CH-1" range from 53.4% to 59.7% black in voting age population (VAP) and average 56.7% black. The new Senate districts in "SB-1" range from 55.0% to 58.5% black in VAP and average 56.2% black. On their face, it is hard to imagine how districts with these percentages might give rise to the charge of "packing."

Packing was first applied to redistricting in a racial context by the late voting rights lawyer Frank Parker, in "County Redistricting in Mississippi: Case Studies in Racial Gerrymandering."<sup>7</sup> I worked with Attorney Parker in many voting rights cases, often alongside attorneys from the Voting Section of the Department of Justice. These cases pioneered the use of statistical analyses in voting rights litigation, including correlation, ecological regression, and overlapping percentages analysis. These techniques have become established as the standard methods used to determine how whites,

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<sup>6</sup>This would not be true wherever it has been shown that Asian Americans, Hispanics, or Native Americans in fact are voting like African Americans – but that must be demonstrated, not assumed.

<sup>7</sup>Mississippi Law Journal, 44 #3 (6/73), 391-424, at 402-03.

blacks, and other groups voted, as part of a determination whether given districts offer African American voters a fair opportunity to elect candidates of their choice, and were so recognized by the U.S. Supreme Court in *Thornburg v. Gingles*.

As Parker states in "County Redistricting in Mississippi," "The 'packed' district is one into which black population and black voters are concentrated, containing many more black persons than neighboring districts." This concentration does not necessarily discriminate against African American voters; indeed, Parker goes on to point out that "In the South, where bloc voting along racial lines, with some exceptions, generally prevails, packing may be the only means by which blacks can elect representatives of their choice."

Thus my analyses of voting patterns in Hinds County, Mississippi, showed that a district had to be at least 65% black in total population for African Americans to have a tossup chance of electing a candidate of their choice there, given the prior patterns of racial bloc voting and political mobilization that obtained there. For several years, the United States Department of Justice used this finding, along with a similar conclusion from the Williamsburg section of Brooklyn, New York, as "the 65% standard" and applied it to proposed redistricting schemes across the United States.

In fact, such a rule is too simple. In a few places, especially when the white community includes military personnel or retirees who do not vote in the jurisdiction, the proportion black in a district's population could be much lower than 65% while still providing the African American community with a fair chance of electing candidates of choice. In some rural counties in the South, districts must be nearly 80% black in total population and more than 70% black in VAP before African Americans have a tossup chance of electing a candidate of their choice. I suspect attorney Parker would be surprised to learn that districts that are only 53% to 59% black in VAP might be attacked as "packed." Packing violates the Voting Rights Act only when it "wastes"

black votes by stuffing African American voters into districts in high percentages. Usually this term has been reserved for districts with much higher proportions of potential black voters than 53-59%.

Note further that the districts show lower concentrations of African Americans than the districts they replaced. The current majority-black House districts ranged from 54.6% to 60.7% black in VAP when they were drawn in 1991, averaging 56.9%. They are now higher in percentage black and range from 52.7% to 66.2% black in VAP, averaging 60.2%. The proposed new districts average just 56.7% black. Moreover, they show smaller deviations from that average, so none is as much as 60% black in VAP.

Similarly, the new Senate districts show lower concentrations of African Americans than the districts they replaced. The current majority-black Senate districts ranged from 53.9% to 59.5% black in VAP when they were drawn in 1991; except for District 2, all were more than 57% black in VAP; including District 2, they averaged 57.4% black. Owing to population shifts, these districts are now higher in percentage black, ranging from 56.5% to 63.8% black in VAP and averaging 60.0%. The new Senate districts average just 56.2% black. Again, they show smaller deviations from that average, so none is as much as 60% black in VAP.

Moreover, in my experience packing is usually charged when the concentration of African American voters into a few districts minimizes the number of districts where they might reasonably be expected to have a tossup chance of electing candidates of their choice. In Chicago, for example, where I was expert in 1985 for the City of Chicago (Mayor) regarding *Ketchum v. Chicago*, black plaintiffs challenged ward boundaries that caused many districts to be more than 65% black or less than 50% black in population. African Americans might have won districts that were 50-60% black in population, just as whites won districts that were 50-60% white in population, but few or no such districts were drawn. Instead, the majority-black districts were drawn black population concentrations larger than 65%,

minimizing the number of majority-black districts. As a result, coupled with racial bloc voting in the white and black communities, African Americans were not provided with a fair chance to win seats on the City Council.<sup>8</sup> But in Virginia, as my analyses will show, the alleged packing of African Americans into House and Senate districts does not deprive black voters of even a single additional district that they would have any reasonable chance to win.

Dr. Lichtman's Packing Analysis Is Fatally Flawed.

On pages 15-16, Dr. Lichtman presents his claim that seven majority-black districts show packing. I have noted that he presents no analyses of election results in these districts bolster this allegation of packing. Instead, Dr. Lichtman invents a "hypothetical election district." He then provides some invented figures that purport to show, in a two-step process involving first the Democratic primary and then the general election, that the African American community can elect candidates of their choice even if they constitute some proportion much lower than 55% in the VAP.

Dr. Lichtman never suggests exactly what proportion, although use of the term "packing" implies that 55% is much too high. He does claim that "blacks could well constitute a majority of the voters in the primary election and thereby nominate the candidate of their choice" when they are a mere "30% of the voters of a hypothetical election district" (page 15). The Democrats' alternative plan implies that districts with VAPs as low as 47% and 48% black would pass muster. However, Dr. Lichtman never supplies examples of districts with these lower proportions that have elected African American candidates or candidates of choice of the black community to the Virginia legislature. Nor does he supply any analyses grounded in past electoral behavior to support his implicit claim that districts substantially lower than 55% black in VAP will provide black communities with a fair chance in the electoral process. His hypothetical claims about behavior in primary elections are grounded in no

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<sup>8</sup>This case settled along lines favorable to the Mayor's office and the black and Latino communities.

analysis of primary elections whatsoever.

Dr. Lichtman does make reference to four elections that he has apparently analyzed: general elections for U.S. Senate, 2000, Lt. Governor, 1997, U.S. Senate, 1996, and Governor, 1989. I write "apparently analyzed" because Dr. Lichtman never presents the results of these analyses. We do not learn what % of the white VAP turned out or voted for each candidate; we do not learn what % of the black VAP turned out or voted for each candidate. In fact, we do not even learn the candidates' names or race!

Even if Dr. Lichtman did present the results of his apparent analyses, these four contests would not be very probative. The best evidence for predicting the political behavior of black and white voters in future contests for the Virginia legislature is the political behavior of black and white voters in recent past contests for the Virginia legislature. Such contests do exist; I have analyzed them; Dr. Lichtman should have done the same.

It is particularly unfortunate to try to draw conclusions about white or black voting in legislative contests from the 1989 general election for Governor. Douglas Wilder won that election, of course, the only African American ever to win the governorship of any state. As I note later, Wilder was very unusual; I quote Paul Goldman, former chair of the Democratic Party in Virginia, to make this point. I will concede that Douglas Wilder may be able to win legislative districts that are 48% black in VAP. But Governor Wilder put together a unique combination of black political mobilization and white crossover voting. His triumph hardly proves that other African American candidates can win. Courts have taken notice of such political superstars: Andrew Young, another nationally famous African American political leader, was able to win Georgia's Fifth Congressional District, even though it was not drawn to provide the black community with a fair opportunity to elect candidates of choice, and a court so held and ordered that the proportion of African Americans in the district's VAP be raised.

There are still more problems with Dr. Lichtman's hypothetical example, which he relies upon in both reports. The example is based on the notion that many whites will vote in Republican primaries, leaving a higher proportion of black voters in Democratic primaries than in the VAP as a whole. Dr. Lichtman seems not to know that primaries are uncommon in Virginia, especially for the legislature. He also may not realize that Virginia holds its legislative contests in odd-numbered years, when primaries for such statewide and national offices as U.S. Senator, Governor, and President do not occur. It is particularly rare that both parties would hold primaries in the same legislative district in the same year. Moreover, Virginia has no requirement that voters must have registered Democratic to vote in the Democratic primary, so any voter can do so.

Again, Dr. Lichtman needs to show examples of past Democratic primaries where black candidates or candidates of choice of the African American community have won in "influence districts" that are 30% to 50% black in VAP.

A mere hypothetical example, based on counterfactual axioms, is hardly persuasive, especially given the fact that in the last eleven years exactly one candidate of choice of the black community has won a seat in the Virginia legislature (and then only one time) except in districts with black majorities above 52% in their VAP.

Finally, my analysis will show that white and black voters behave differently when they perceive that a district provides white voters with a good chance to elect candidates of their choice, compared to when they perceive that a district provides black voters with a good chance to elect candidates of their choice. In short, when a district is perceived as "black-electable," it often is black-electable (although not always). When a district is perceived as "white-electable," the African American community has little chance to prevail. Comparison of various election results allows this conclusion. A mere hypothetical example cannot prevail against evidence based on fact.



Are "Influence Districts" Relevant Here?

The alleged "packing" of which Dr. Lichtman complains does not deprive black voters of even a single additional Assembly or Senate district where they might reasonably be expected to have a tossup chance of electing candidates of their choice. Rather, Dr. Lichtman's report next turns to a discussion of "influence districts" (pages 16-23). Dr. Lichtman seems to define the term "influence district" as a district between 20% and 50% black in VAP, since he concerns himself with House District 91, just 22.8% black in VAP under the existing plan. He claims that the alleged packing in majority-black districts reduces African Americans' ability to influence electoral outcomes in potential influence districts that adjoin the majority-black districts. Lichtman deplores that the proportion of African Americans in four Assembly districts near the majority-black districts has been reduced by about 7%, comparing 2001 to 1991. He also finds that one Senate district dropped from 29.5% black in 1991 VAP to 24.4% black under its proposed new boundaries.

Table 3 shows the five legislative influence districts that draw Dr. Lichtman's ire.

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Table 3: "Influence Districts".

<u>District</u>	<u>% Black in the VAP Under Each Plan</u>		
	<u>Current</u>	<u>Proposed</u>	<u>Democrat Alternative</u>
House 62	29.3%	22.3%	23.0%
House 64	29.4	21.7	36.4
House 83	24.5	17.7	15.3
House 91	22.8	15.9	8.8
Senate 13	29.5	24.4	39.7

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It is hard to imagine how these differences amount to a persuasive claim of racial discrimination against African American voters. In a few decisions, courts may have held that a redistricting plan discriminated against a black community's chance to influence the outcome of an election by splitting up a black neighborhood that might have been say 35% of a district into two districts, in each of which blacks constituted perhaps 19% of the VAP. But this would have happened in overwhelmingly white political jurisdictions where no majority-black district could be drawn. Courts have routinely held that

districts offering hope that the black community can elect candidates of choice are far more important than influence districts.

The "Motion for Temporary Injunction" (page 19), the "Comment" titled "Before the United States Department of Justice Voting Section" filed by the Joint Senate and House Democratic Caucus (page 31), and other documents present what might be termed "Democrat Alternative" plans for the House and Senate. Table 3 includes the proportion black in the VAP in these plans for the districts Lichtman questions. Note that in two districts (House 64 and Senate 13) the "Democrat Alternative" plans indeed create districts with higher black VAP percentages. But in two districts (House 83 and House 91) the "Democrat Alternative" plan creates districts with lower black VAP percentages. The remaining district, House 62, is reduced in the Republican plan from 29.3% black in the VAP to 22.3% black, and in the Democratic alternative to 23.0% -- almost the same.

In all, House Plan CH-1 already provides for 22 influence districts, ranging from 20.0% to 35.1% black in VAP. Senate Plan SB-1 provides for six such districts, ranging from 20.1% to 32.1% black in VAP.

Moreover, my analysis will show that none of these districts provides African American voters with an equal chance to elect candidates of their choice. None would even if their proportion black were increased slightly as a result of decreasing the proportion black in some or all of the majority-black districts in the proposed House and Senate plans. Thus the proposed new House and Senate districts do not "waste" African American votes that might be put to better use elsewhere. Thus influence districts cannot possibly be regarded as legally or factually required.

Dr. Lichtman engages in an extended hypothetical example (pages 15-20) that claims to show that African American voters can elect candidates of their choice even in influence districts where they constitute just 30% of the VAP. His analysis fails because it is not grounded in any analyses of past

electoral behavior. To be sure, the African American candidate who can mobilize considerable support among white voters may occasionally win in majority-white districts, even in districts less than 20% black in VAP. African American George Lovelace, Democrat, won House District 35 in a special election in 1996 marked by extremely low voting, although he lost it the next year and thereafter; District 35 is less than 5% black.<sup>9</sup> Therefore I cannot state that African American candidates cannot win districts that are, say, 25% or 30% black. I can state that African American candidates do not have a reasonable chance to win such districts when voting is racially polarized.

If voting were not racially polarized, the proportion African Americans are in the VAP makes no difference, so increasing the proportion black by 5% (or any other percent) would be irrelevant. By definition, when voting is not racially polarized, black voters and white voters are not voting along racial lines. White voters are voting for black candidates; black voters may be voting for white candidates. When such crossover voting is common enough to be the rule rather than the exception, then analyses of voting behavior like those reported below become irrelevant. At that point, the proportion black in the VAP also becomes irrelevant, just as the proportion, say, of people over a certain height is irrelevant to their voting behavior, hence to the drawing of district lines.

Except for the Lovelace contest noted directly above, voting for the Virginia legislature during the last ten years has been marked by racial polarization in all districts where whites feel they have a chance to prevail.

Even in the Lovelace contest, Lovelace's white opponent won a majority (53%) of the white votes, leaving Lovelace with 47%, just enough to squeak through to victory the first time, with heavy support from black voters. And except for that incident, no candidate of the African American community has won a

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<sup>9</sup>African American Paul Harris, Republican, won House District 58 in 1997 and thereafter, but he was not the candidate of choice of the black community. His contests are analogous to white-white elections, so his victories in a district less than 8% black are not relevant here.

seat in the House or Senate in the last ten years except in districts where black voters were a solid majority. Indeed, since 1991, only 12 times has a black candidate even run in a majority-white House Seat<sup>10</sup> and only once has a significant black candidate done so in a majority-white Senate Seat. This is itself a statement that the African American community does not think much of its chances to elect black candidates in districts where they do not comprise a solid majority of the VAP.

When Racial Polarization Obtains, Are the Majority Black Districts in CH-1 Packed?

The rest of my report will prove that voting for the Virginia legislature has customarily been marked by racial polarization. Unlike Dr. Lichtman's reports, this report is based on analyses of past electoral behavior. It will show that election districts need to be at least 52% black in VAP to provide the African American community with a reasonable chance to elect candidates of choice. Indeed, some districts much more than 52% black in VAP have proven unwinnable by African American candidates.

Recall that the majority-black House districts drawn for 2001 range from 53.4% to 59.7% black in VAP and average 56.7% black. To evaluate the claim that such districts might "pack" African American voters, let us examine the results of contests in all the existing majority-black House of Delegates districts over the last ten years. Table 4 shows the election history for the last decade in these twelve districts. The complaint and Dr. Lichtman's reports imply that most of the districts listed in Table 4 are "packed" so African American candidates not only win them, but win them with so many votes to spare that the districts are unconstitutional because they waste so many black votes.

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<sup>10</sup>I omit black Republicans, who without exception were not candidates of choice of the black community, and trivial black candidates, who without exception were not candidates of choice of the black community.

Table 4: Election History, Majority-Black House Districts, 1991-2001.

<u>Dist.</u>	<u>Date</u>	<u>Candidate</u>	<u>Race</u>	<u>Party</u>	<u>Results</u>
63	9/11/91	Jay DeBoer	W	D	Defeated 2 W D
63	11/5/91	Jay DeBoer	W	D	Defeated W R
63	6/8/93	Jay DeBoer	W	D	Defeated W D
63	11/2/93	Jay DeBoer	W	D	Defeated W R
63	6/13/95	Jay DeBoer	W	D	unopposed
63	11/2/95	Jay DeBoer	W	D	Defeated W R
63	6/10/97	Jay DeBoer	W	D	unopposed
63	11/4/97	Jay DeBoer	W	D	unopposed
63	6/8/99	Jay DeBoer	W	D	unopposed
63	11/2/99	Jay DeBoer	W	D	Defeated W I
69	9/11/91	Frank Hall	W	D	Defeated B D
69	11/5/91	Frank Hall	W	D	unopposed
69	6/8/93	Frank Hall	W	D	unopposed
69	11/2/93	Frank Hall	W	D	Defeated W I
69	6/13/95	Frank Hall	W	D	unopposed
69	11/2/95	Frank Hall	W	D	Defeated B R
69	6/10/97	Frank Hall	W	D	unopposed
69	11/4/97	Frank Hall	W	D	unopposed
69	6/8/99	Frank Hall	W	D	unopposed
69	11/2/99	Frank Hall	W	D	unopposed
70	9/11/91	Roland Ealey	B	D	unopposed
70	11/5/91	Roland Ealey	B	D	Defeated W R
70	5/5/92	Lawrence Wilder	B	D	Defeated B R and W I
70	6/8/93	Dwight Jones	B	D	Defeated B D
70	11/2/93	Dwight Jones	B	D	Defeated W R and W I
70	6/13/95	Dwight Jones	B	D	unopposed
70	11/2/95	Dwight Jones	B	D	Defeated W R and B I
70	6/10/97	Dwight Jones	B	D	unopposed
70	11/4/97	Dwight Jones	B	D	unopposed
70	6/8/99	Dwight Jones	B	D	unopposed
70	11/2/99	Dwight Jones	B	D	unopposed
71	9/11/91	Jean Cunningham	B	D	unopposed
71	11/5/91	Jean Cunningham	B	D	unopposed
71	6/8/93	Jean Cunningham	B	D	unopposed
71	11/2/93	Jean Cunningham	B	D	Defeated W I
71	6/13/95	Jean Cunningham	B	D	unopposed
71	11/2/95	Jean Cunningham	B	D	unopposed
71	6/10/97	Viola Baskerville	B	D	Defeated B D
71	11/4/97	Viola Baskerville	B	D	Defeated W R
71	6/8/99	Viola Baskerville	B	D	unopposed
71	11/2/99	Viola Baskerville	B	D	unopposed
74	9/11/91	Robert Ball	W	D	unopposed
74	11/5/91	Robert Ball	W	D	unopposed
74	6/8/93	Robert Ball	W	D	unopposed
74	11/2/93	Robert Ball	W	D	Defeated W R
74	6/13/95	Donald McEachin	B	D	Defeated W D
74	11/2/95	Donald McEachin	B	D	Defeated W R
74	6/10/97	Donald McEachin	B	D	Defeated W D
74	11/4/97	Donald McEachin	B	D	Defeated W I
74	6/8/99	Donald McEachin	B	D	unopposed
74	11/2/99	Donald McEachin	B	D	unopposed
75	9/11/91	Paul Council	W	D	Defeated W D
75	11/5/91	Paul Council	W	D	unopposed
75	6/8/93	Paul Council	W	D	Defeated B D
75	11/2/93	Paul Council	W	D	unopposed
75	6/13/95	Paul Council	W	D	unopposed

75	11/2/95	Paul Council	W	D	unopposed
75	6/10/97	Paul Council	W	D	Defeated B D
75	11/4/97	Paul Council	W	D	unopposed
75	6/8/99	Paul Council	W	D	unopposed
75	11/2/99	Paul Council	W	D	unopposed
77	9/11/91	Thomas Forehand	W	D	unopposed
77	11/5/91	Thomas Forehand	W	D	Defeated B I
77	6/8/93	Lionell Spruill	B	D	Defeated W D
77	11/2/93	Lionell Spruill	B	D	Defeated W R
77	6/13/95	Lionell Spruill	B	D	unopposed
77	11/2/95	Lionell Spruill	B	D	Defeated W R
77	6/10/97	Lionell Spruill	B	D	unopposed
77	11/4/97	Lionell Spruill	B	D	unopposed
77	6/8/99	Lionell Spruill	B	D	unopposed
77	11/2/99	Lionell Spruill	B	D	unopposed
80	9/11/91	Ken Melvin	B	D	unopposed
80	11/5/91	Ken Melvin	B	D	unopposed
80	6/8/93	Ken Melvin	B	D	unopposed
80	11/2/93	Ken Melvin	B	D	Defeated W I
80	6/13/95	Ken Melvin	B	D	unopposed
80	11/2/95	Ken Melvin	B	D	Defeated W R
80	6/10/97	Ken Melvin	B	D	unopposed
80	11/4/97	Ken Melvin	B	D	unopposed
80	6/8/99	Ken Melvin	B	D	unopposed
80	11/2/99	Ken Melvin	B	D	unopposed
89	9/11/91	Jerrauld Jones	B	D	unopposed
89	11/5/91	Jerrauld Jones	B	D	Defeated W I
89	6/8/93	Jerrauld Jones	B	D	unopposed
89	11/2/93	Jerrauld Jones	B	D	unopposed
89	6/13/95	Jerrauld Jones	B	D	Defeated B D
89	11/2/95	Jerrauld Jones	B	D	unopposed
89	6/10/97	Jerrauld Jones	B	D	unopposed
89	11/4/97	Jerrauld Jones	B	D	unopposed
89	6/8/99	Jerrauld Jones	B	D	unopposed
89	11/2/99	Jerrauld Jones	B	D	unopposed
90	9/11/91	Billy Robinson	B	D	unopposed
90	11/5/91	Billy Robinson	B	D	unopposed
90	6/8/93	Billy Robinson	B	D	unopposed
90	11/2/93	Billy Robinson	B	D	unopposed
90	6/13/95	Billy Robinson	B	D	unopposed
90	11/2/95	Billy Robinson	B	D	unopposed
90	6/10/97	Billy Robinson	B	D	unopposed
90	11/4/97	Billy Robinson	B	D	unopposed
90	6/8/99	Billy Robinson	B	D	Defeated B D
90	11/2/99	Billy Robinson	B	D	Defeated W R, W I
92	9/11/91	Mary Christian	B	D	unopposed
92	11/5/91	Mary Christian	B	D	unopposed
92	6/8/93	Mary Christian	B	D	unopposed
92	11/2/93	Mary Christian	B	D	unopposed
92	6/13/95	Mary Christian	B	D	unopposed
92	11/2/95	Mary Christian	B	D	unopposed
92	6/10/97	Mary Christian	B	D	unopposed
92	11/4/97	Mary Christian	B	D	unopposed
92	6/8/99	Mary Christian	B	D	unopposed
92	11/2/99	Mary Christian	B	D	Defeated W I
95	9/11/91	Flora Crittenden	B	D	unopposed
95	11/5/91	Flora Crittenden	B	D	Defeated W I
95	6/8/93	Flora Crittenden	B	D	unopposed
95	11/2/93	Flora Crittenden	B	D	Defeated W I

95	6/13/95	Flora Crittenden	B	D	unopposed
95	11/2/95	Flora Crittenden	B	D	unopposed
95	6/10/97	Flora Crittenden	B	D	unopposed
95	11/4/97	Flora Crittenden	B	D	unopposed
95	6/8/99	Flora Crittenden	B	D	unopposed
95	11/1/99	Flora Crittenden	B	D	unopposed

Table 4 lists the 132 terms of office at issue during this timespan in these twelve districts. Of this total, white candidates won 46 or about 35%.

I respectfully submit that this result in itself is prima facie evidence that districts ranging from 53.4% to 59.7% black in VAP and averaging 56.7% black, such as those drawn in the new plan for the Virginia House of Delegates, cannot be packed. After all, the existing districts in Table 4 ranged from 54.6% to 60.7% black in VAP when they were drawn in 1991 and averaged 56.9% black, yet whites won more than a third of them! Moreover, these districts have grown blacker over time and now range from 52.7% to 66.2% black in VAP, averaging 60.2% black, and again, whites won more than a third of these contests. African American votes were not only not wasted, but in many instances were not adequate. So much for the charge of packing, at least for the House.

#### Are Black Candidates Ever the Candidates of Choice of the White Community?

Sometimes white voters vote for black candidates. Among the House elections I studied, this occurred in District 70 on 12/15/92, for example, when Lynda Owens, the black Republican, probably carried the white community or did so in conjunction with Cecil Creasey, white independent.<sup>11</sup> In such a case, Owens and Creasey may have been the candidates of choice of the white community, as opposed to Lawrence Wilder, the black Democrat. African American Paul Harris, Republican, won House District 58 in 1997 and thereafter but was not the candidate of choice of the black community. Contests like these are analogous to white-white elections, so I do not analyze black Republicans here.

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<sup>11</sup>I did not have the precinct level election returns required to analyze this contest.



The 6/8/93 Democratic primary in District 77 was surprising. Here Lionell Spruill won by a large margin in the white electorate, but white voters were few, perhaps in part because white Republicans do not usually vote in Democratic primaries, and perhaps in part because of the chilling effect, to be described below. Meanwhile African American voters preferred Eileen Olds by a narrow margin. This election is a true aberration and is shown in Table 7.

Are White Candidates Ever the Candidates of Choice of the Black Community?

The foregoing contests were anomalies of little consequence for my analysis. But black voters may support white candidates against non-Republican black candidates -- whites who are the candidates of choice of the white community. Such a white candidate may be well-known in the African American community, campaign there, and have political connections and social ties. Assessing whether white candidates have been the candidates of choice of the black community is more important, because nothing in the Voting Rights Act, the U.S. Constitution, or other standards of fairness requires that the African American community elect African American candidates. What is required is that the African American community have a reasonable chance to elect candidates of its choice, whatever race these candidates might happen to be.

On the other hand, incumbents in the Virginia legislature seem to enjoy important advantages. Across the United States, for state legislatures and for the United States Congress, incumbency offers candidates a considerable edge. Indeed, it has now become part of the political wisdom that once an incumbent U.S. Congressman gets re-elected once or twice, s/he is unlikely to be unseated. Virginia legislative politics seem particularly affected by inertia. Seats often go uncontested. Primary contests are extremely rare, especially when there is an incumbent. Table 4 shows that both the white and black communities are reluctant to challenge incumbent House Delegates. This reluctance cannot be equated with "candidate of choice" without substantial statistical and anecdotal proof.

House District 63 is the first district that Dr. Lichtman attacks (pages 6-7). It is 57.8% black in VAP, which Dr. Lichtman critiques as being packed. Yet the black community in District 63 has never elected a black candidate! Indeed, Jay DeBoer, incumbent white Democrat, never faced a black challenger during the decade.

How does the African American community feel about DeBoer compared to a black candidate or a candidate identified with the African American community?

Dr. Lichtman claims that District 63 may be "under the effective political control of minorities, given that white candidates may well [sic] the candidates of choice of African American voters" (page 4, note 1). In fact, we cannot know for sure, but past election behavior in District 63 provides no reason to assume that it is "under the effective political control of minorities." Given that blacks rarely vote for Republicans, the primary is where we might expect to see dissatisfaction with DeBoer expressed. Data for the 1991 Democratic primary are not available, but they are for the 1993 primary. There, DeBoer defeated Joseph E. Preston, 58% to 42%. Indeed, DeBoer won votes from 16.9% of the white VAP, while Preston won just 0.3% of the white votes. Even though DeBoer was the overwhelming choice of whites, however, he was not the candidate of choice of the African American community.

Preston was, receiving 9.4% of the black VAP, while DeBoer won just 1.4%.<sup>12</sup> After 1993, DeBoer never faced another challenger in a Democratic primary, but it seems safe to suggest that he was hardly the candidate of choice of black voters, even though they have voted for him in general elections ever since.

District 69, the next district that Dr. Lichtman attacks (pages 7-8), is 57.6% black in VAP, which Dr. Lichtman again critiques as packed. Again, the black community in District 69 has never elected a black candidate! How,

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<sup>12</sup>Preston therefore might be considered the candidate of choice of the black community, but he won much lower support there than most black candidates. Only 9.7% of the black VAP voted in this white-white contest, compared to 17.2% of the white VAP.

then, could it possibly be packed?

Frank Hall, incumbent white Democrat, did face a black challenger, Donald McEachin, at the beginning of the decade. Unfortunately, I could not obtain precinct election returns for this 9/11/91 Democratic Primary. McEachin received 40.8% of the votes cast, Hall 59.2%. Based on the consistent pattern of RBV found in other contests for the Virginia legislature, it seems reasonable to claim that the African American community voted overwhelmingly for McEachin while whites voted overwhelmingly for Hall.

It is true that Hall, the white Democrat, defeated a black Republican, on 11/2/95. In that election, Hall carried the African American community, hence was its candidate of choice. This was hardly surprising; Anthony Moore, the Republican, narrowly carried the white community, hence was its candidate of choice. It is also true that after he roundly defeated McEachin in 1991, Hall never faced another challenger in a Democratic primary, but again it seems safe to suggest that he was hardly the candidate of choice of black voters, even though they have voted for him in general elections ever since. Again, election behavior in District 69 provides no reason to assume that it is "under the effective political control of minorities." Quite the opposite: African Americans do not show sufficient political mobilization to win, even in a district that is currently almost 63% black in VAP. Under the new plan, this district is reduced to just 57.6% black in VAP, which will make it even harder for the African American community to elect candidates of their choice. To argue that this new district unfairly wastes black votes because it is too black is simply counterfactual.

How Do Whites Behave in Black-White Contests in House Districts Where They Do Not Expect To Win?

The notion that a white candidate may receive black votes, yet not be the candidate of choice of the black community is made more obvious by looking at the converse situation: white political behavior in districts where whites do not expect to win and where few strong white candidates therefore run for

office. In House District 92, Mary Christian, black Democrat, faced a white challenger only once during the decade, never faced any challenger in a Democratic primary, and never faced any significant challenge. How does the white community feel about Christian compared to a white candidate or a candidate more closely identified with the white community? We cannot tell for sure. The one contested election, 11/2/1999, offers some insight:

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Table 5: Black-White Contest, House District 92, 1999.

<u>Date</u>	<u>Candidate</u>	<u>Race</u>	<u>Votes</u>	<u>% of</u>	<u>% BVAP</u>	<u>%W-&gt;W</u>	<u>%W-&gt;B</u>	<u>%B-&gt;W</u>	<u>%B-&gt;B</u>
		<u>Party</u>		<u>Votes</u>					
11/2/99	Mary T. Christian	B D	6500	79.0	66%		1.6%		
	23.3% Timothy L. Lynch	W I	1657	20.1		0.9%*		5.4%*	

%W->W means % of white VAP that voted for the white candidate.

\*Low level of white voting renders these %'s uncertain.

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Table 5 shows few votes by the white electorate for anyone! Of votes cast by whites for this office (rollon), 64% went for Christian, the black incumbent, but more important is the fact that only 2.5% of the white VAP bothered to cast a ballot for this office, compared to almost 30% of the black VAP. This pattern shows an extreme case of what I have termed a "chilling effect" – in this case, upon white voters or would-be voters. White potential voters may not feel that they have much chance of electing a candidate of their choice, so most do not vote at all and a few vote for the incumbent. Perhaps those few knew Ms. Christian, heard her speak, recognized her name, contacted her for service, or simply wanted to identify with the winner. (That last thinking is akin to the motivation that underlies the well-known "bandwagon effect": polls taken a few days after an election often show a considerably higher proportion of people claiming to have voted for the winning candidate than the proportion of votes s/he actually won.) Potential white candidates, even strong ones, may be deterred by this apathy in the white community. Campaign contributions and volunteers may be hard to find.

Table 6 shows every election I could locate in the last decade in which black candidates opposed white candidates in majority-black districts that

whites did not expect to win. I need to explain my methodology here. Often I analyze majority-black districts separately from majority-white districts because voters and potential voters, especially in the white community, behave differently in majority-black districts, where they do not expect to be able to elect the candidate of their choice. In contests for the Virginia House of Delegates, however, Table 4 shows that white voters often are able to elect the candidate of their choice, even in majority-black districts. In still other instances, white voters think they will be able to do so. Accordingly, rather than compare white voting behavior in majority-black and majority-white districts, it makes more sense to divide the districts according to whether whites expected they might have a chance to elect the candidate of their choice. In that category I will place all contests in which black voters were in the minority, all contests won by the candidate of choice of the white community, and all contests in which the white candidate won at least 30% of the votes cast.

The remainder consists of all contests in which the white candidate won less than 30% of the votes cast. All of these contests took place in districts in which African American voters were in the majority. I submit that most white voters knew that white candidates were unlikely to prevail in elections in which those candidates wound up with less than 30% of the votes.

Table 6 summarizes the election behavior in these contests.<sup>13</sup>

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<sup>13</sup>This methodology is tautological in one regard: since I am removing from the pool of elections in black-majority districts those contests in which white candidates won or did well, it is not surprising that in Table 3, the remainder, whites showed little political mobilization and racial bloc voting. However, the reasoning presented in the body of the paper is not tautological. I can only detect a chilling effect where such an effect exists, after all. The fact that in some majority-black districts, black potential candidates still face an uphill struggle against entrenched white incumbents and white racial bloc voting, merely confirms that these districts can hardly be considered packed.

Table 6: Analysis of Black-White Contests, House Districts Where Whites Did Not Expect To Win.

<u>Dist.</u>	<u>Date</u>	<u>Candidate</u> <u>Party</u>	<u>Race</u>	<u>Votes</u>	<u>% of</u>	<u>% BVAP</u>	<u>%W-&gt;W</u>	<u>%W-&gt;B</u>	<u>%B-&gt;W</u>	<u>%B-&gt;B</u>
71	11/2/93	Jean Cunningham	B D	10494	88.7	53%		23.7%		25.0%
		Bernard Artabazon	W I	1336	11.3		5.6%		0.7%	
71	11/4/97	Viola Baskerville	B D	9846	85.5	53%		23.4%		19.3%
		Bernard Artabazon	W V	1659	14.4		7.0%		1.5%	
74	6/10/97	Donald McEachin	B D	2265	91.0	65%	Trivial white candidate;			
	this	Victor A. Motley	W D	216	9.0		election will not be			
	analyzed. <sup>14</sup>									
74	11/4/97	Donald McEachin	B D	12293	79.5	65%		18.7%		30.9%
		Cherie Phillips	W I	3136	20.3		18.0%		0.6%	
77	11/2/93	Lionell Spruill	B D	9096	74.0	55%		16.1%		22.5%
		Joseph S. Johnson	W I	3183	25.9		12.1%		1.2%	
77	11/2/95	Lionell Spruill	B D	8932	79.8	55%		11.9%		26.7%
		Joseph S. Johnson	W I	2255	20.1		9.6%		0.0%	
80	11/2/93	Kenneth Melvin	B D	9640	79.2	61%		17.7%		26.3%
		James Holley III	W I	2519	20.7		6.6%		5.5%	
80	11/2/95	Kenneth Melvin	B D	9514	76.9	61%		3.7%		32.1%
		F. Andrews Jr.	W R	2859	23.1		20.0%		0%	
89	11/5/91	Jerrauld C. Jones	B D	4157	80.3	64%		6.2%		10.1%
		Earline Boone	W I	996	19.2		4.7%		0.5%	
92	11/2/99	Mary T. Christian	B D	6500	79.0	66%		1.6%*		23.3%
		Timothy L. Lynch	W I	1657	20.1		0.9%*		5.4%	
		*Low level of white voting renders these %'s uncertain.								
95	11/5/91	Henry Maxwell	B D	6070	83.9	59%		6.5%		22.7%
		Donnetter Haigood	W I	1158	16.0		5.4%		0.9%	
95	11/2/93	Flora Crittenden	B D	8686	79.9	59%		9.0%		28.7%
		Matt B. Voorhees	W I	2183	20.1		9.9%		0.9%	
Overall Means For Black Candidates				81.5	60%		12.6%		24.3%	
Overall Means For White Candidates				18.5		9.1%		1.6%		

At first glance, the lopsided black victories in Table 6 exemplify the kind of noncompetitive elections that can occur when districts are packed. However, white voting behavior in the contests summarized in Table 6 is strikingly different from white voting behavior in most Virginia elections and exemplifies the chilling effect discussed earlier. In Table 6, on average,

<sup>14</sup>Including trivial white candidates would unfairly strengthen my conclusions by increasing white crossover voting in these districts where whites did not expect to win. Trivial white candidates are not candidates of choice of the white community.

white voters prefer black candidates, sometimes by substantial margins. Of the valid ballots cast by whites for this office, just 42% went to white candidates. White voting behavior in Table 6 also differs in that whites vote less than blacks. On average, 21.6% of the white VAP voted for these offices, compared to almost 26% of the black VAP. It is true that these districts are under effective black political control, but partly because whites have given up. If whites expected to win, which would surely occur if the districts were redrawn to be 49.9% black in VAP and might occur even with somewhat higher black proportions, then they would behave differently.

#### How Do Whites Behave in Districts They Expect to Win?

Table 7 lists every election I could locate in the last decade in which black candidates opposed white candidates in majority-black districts that whites might hope to win. It tells quite a different story. In elections where whites feel they can win, as in other districts across Virginia in which whites form the majority, they vote by wide margins for white candidates. On average, Table 7 reveals, 83% of white voters voted for white candidates.<sup>15</sup> In Table 6, on the other hand, only 42% of white voters voted for white candidates.

Conversely, African Americans voted similarly in Tables 6 and 7. In Table 6, 94% of the black rollon voted for black candidates. On average, 92% in Table 7 did so.<sup>16</sup> This similarity encourages the conclusion that no basic division separates the contests in these two tables except the white estimate of success. However, African American political mobilization differs in the two tables: in Table 6, where the election districts are perceived as favoring black victory, an average 25.9% of the black VAP cast valid votes for

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<sup>15</sup>The calculation is  $18.1\%$ , the average proportion of the white VAP for white candidates, divided by the white rollon, the % of the white VAP that voted for this office. The white rollon =  $18.1\% + 3.7\%$  (the average proportion of the white VAP for black candidates) or  $21.8\%$ . The result,  $18.1 / 21.8$ , =  $83\%$ .

<sup>16</sup>The prior footnote gives the method for calculating these proportions. For Table 6,  $14.5\% / (14.5\% + 1.2\%) = 92.4\%$  of black voters voted for black candidates.



this office. In Table 7, just 16.9% of the black VAP voted for these offices.

In prior analyses in other states, I have frequently found that the creation of majority-black districts triggers a "warming effect," prompting African Americans to register to vote, causing new and stronger black candidates to announce for office, and producing higher black turnout and rollon. This is what has happened in the districts and elections summarized in Table 6. Interestingly, even the creation of majority black districts did not always have this impact, as shown in Table 7. This result is one more reason to conclude that districts 55%-60% black in VAP are hardly packed. On the contrary, such black majorities have not always been large enough to communicate a sense of hope and efficacy to African American voters, leading to greater political mobilization.

Table 7: Analysis of Black-White Contests, Majority-Black House Districts Where Whites Hoped To Win.

Dist.	Date	Candidate Party	Race	Votes	% of Votes	% BVAP	%W->W	%W->B	%B->W	%B->B
69	9/11/91	Donald McEachin	B	D	2599	40.8	63%	No data available.		
	Franklin Hall		W	D	3775	59.2				
69	11/2/95	Anthony Moore***	B	R	2776	26.5	63%			
	Franklin Hall		W	D	7686	73.5				
70	11/5/91	Roland D. Ealey	B	D	4522	51.2	62%		6.6%	16.0%
	Charles Perkins		W	R	4308	48.8		19.9%	0%	
70	12/15/92	Lawrence Wilder	B	D	3586	47.8	62%	No data available.		
	Probably									
	Lynda Owens****		B	R	1679	22.3	>50% of whites voted for			
	black									
	Cecil Creasey Jr.		W	I	2176	29.0	Republican and white			
	independent									
70	11/2/93	Dwight C. Jones	B	D	6312	50.6	62%		6.8	18.3%
	Marie M. Suyes		W	R	5945	47.6		23.9%	0.2%	
	Rose L. Simpson*		W	I	226	1.8		0.7%	0.2%	
70	11/2/95	Dwight C. Jones	B	D	6014	59.0	62%		6.6%	18.1%
	M.E. Hall, Jr.		W	R	3559	34.9		16.2%	0.5%	
	Mamie Lee Moore*		B	I	622	6.1			0.5%	0.4%
74	6/13/95	Donald McEachin	B	D	2318	51.5	65%		3.5%	7.2%
	Robert Ball Sr.		W	D	2183	48.5		5.2%	4.8%	
74	11/2/95	Donald McEachin	B	D	9614	66.1	65%		6.3%	24.3%
	Gordon PriorW		R	4931	33.9		14.6%		2.1%	
75	6/8/93	Sherlock Holmes	B	D	2609	41.3	57%		1.1%	11.2%
	Paul Council Jr.		W	D	3707	58.7		25.0%	0%	
75	6/10/97	D. Mauhrine Brown	B	D	1201	34.0	57%		0%	6.2%
	Paul Council Jr.		W	D	2311	66.0		14%	1%	
77	11/5/91	Willia Bazemore	B	I	5070	47.1	55%		0.1%	22.1%
	Thomas Forehand		W	D	5685	52.8		20%	3.1%	
77	6/8/93	Lionell Spruill	B	D	2347	54.3	55%		3.1%	8.1%
	Eileen A. Olds		W	D	1974	45.7		0.9%	8.4%	
90	11/2/99	W. Robinson Jr.	B	D	4735	50.0	58%		1.9%	19.3%
	Michael L. Ball		W	R	4025	42.5		23.7%	0%	
	Darrin MacKinnon*		W	I	699	7.4		2.5%	1%	
Overall Means For Black Candidates				49.5%***		3.7%**				
15.9%**										
Overall Means For White Candidates				49.1***		60.5%	18.4%**		1.4%**	

\*These candidates were trivial, so I omitted their %'s.<sup>17</sup>

\*\*These averages omit the Spruill-Olds contest.

\*\*\*Black Republican not the candidate of choice of the black community. Analogous to white-white contest; not analyzed here.

<sup>17</sup>Again, trivial candidates are not candidates of choice of their respective communities.

\*\*\*\*Vote %'s included with whites.

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One conclusion from Table 6 might be that if we want to help white Americans overcome their reluctance to vote for black candidates, we should put them in black majority districts where they believe they have little hope of electing white candidates! A more appropriate conclusion for this analysis is that the combination of local political history, including black incumbency and weak white opposition, along with substantial black VAP majorities, have prompted white voters to give up hope of electing one of their own, at least temporarily. This change in white voting behavior made for easy victories for the candidates of choice of the African American community. Table 7 indicates that this is not the only outcome in such districts, however.

How Do Black Candidates Fare in Majority-Black House Districts When Whites Have Hopes of Victory?

Table 7 shows that black candidates lost outright to whites in four contests (in Districts 69 in 1991, 75 both times, and 77 in 1991). The white candidate also won District 69 in 1995 against a black Republican, but as we have noted, the white candidate was probably the candidate of choice of the African American community. The Spruill-Olds election remains anomalous: Olds won 51% of the black votes cast.<sup>18</sup> I do not include these two elections in the voting behavior averages in Table 7 and will not include them in the discussion below.

Moreover, five of the seven black victories were by narrow margins (District 70 in 1991, 1992, and 1993, District 74 on 6/13/95, and District 90). Only two of these eleven elections could be called "secure" black victories (Districts 70 in 1995 and 74 in 1995). For that matter, two of the white victories could be called "secure" (Districts 69 in 1991 and 75 in 1997). Such a record hardly supports a charge of packing.

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<sup>18</sup>The calculation is 8.4%, the black VAP for Olds, divided by the black rollon, the % of the black VAP that voted for this office, which is 8.4% + 8.1% or 16.5%. The result,  $8.4 / 16.5$ , = 50.9%.

Unlike the first two districts in Dr. Lichtman's report, African Americans have prevailed in the third district that Dr. Lichtman attacks (House report, pages 8-9), District 70. Again, Lichtman suggests that the district, scheduled to be 57.6% black in VAP, is packed. But consider the first election in this district in the period under review, the general election in November, 1991. In this contest Roland Ealey, a black Democrat, defeated a white Republican. The election was marked by racial bloc voting: about 99% of the black rollon voted for Ealey while 75% of the white rollon voted for the white candidate. Yet despite this overwhelming bloc voting in the African American community, the election was very close: Ealey won just 51.2% of the vote. His margin was just 963 votes. Meanwhile, 889 whites voted for him. If just 500 of them had changed their minds and voted for the white candidate, the white candidate would have won. Surely Mr. Ealey, who barely survived this election, would not want his district "unpacked" by having it markedly reduced in black VAP!

Table 7 shows that in the next regular general election in District 70, 11/2/93, voting was again polarized along racial lines: Black Democrat Dwight Jones won approximately 99% of the African American rollon while white Republican Marie Suyes won 78% of the white rollon. Jones defeated Suyes by fewer than 400 votes out of more than 12,000 cast. He won only because he was able to capture one fifth of the white rollon and was aided by a third candidate, Rose Simpson, white independent, who won almost 2% of the votes.

The fourth House district criticized by Dr. Lichtman is District 74. The complaint in this case singles out District 74 as "clearly drawn to include as many African Americans as possible." It notes that District 74 "has the highest percentage of African Americans in the entire Commonwealth" (59.7% of the VAP). Note, however, that District 74 is currently 65.1% black in VAP; the new proposed District 74 decreases its black proportion in the VAP by 5.4%, which is hardly evidence of packing.

When created, District 74 was 56.1% black in VAP. For the first half of the 1990s no black candidate challenged the white incumbent, Robert Ball, perhaps because none thought he could be dislodged. As I have suggested for other unopposed white candidates, Ball probably was never the candidate of choice of the African American community. Gradually the district became blacker at a rate of almost a percentage point per year. In the Democratic primary of 6/13/95, Donald McEachin, African American, narrowly defeated Ball, winning just 51.5% of the votes cast. In 1995, District 74 was probably 61% black in VAP. If it had been 59.7% black in VAP, the election would have been a true cliffhanger – so again, a district 59.7% black in VAP can hardly be considered packed.

To be sure, in the ensuing general election, McEachin defeated a white Republican two to one, probably assisted by white Democrats. In 1997, McEachin trounced a trivial white candidate in the primary and a white independent in the general election. Since then, he has not faced opposition.

Surely McEachin was reaping the same benefits of Virginia incumbency as white incumbents. The question is: what happens the next time District 74 is open?

I understand McEachin is not running for this seat next time. Will white voters mobilize behind a candidate of choice of the white community? It is possible, if the 1995 election – the last time the seat was open – offers any indication.

The complaint next singles out District 77, claiming its "lines meticulously take in precincts with heavy percentages of African American voters, excluding white voters in surrounding precincts," and noting that African American voters comprise "55.9% of the district's VAP." Dr. Lichtman likewise attacks District 77 (pages 11-13), implying that it is packed because it is 55.9% black in VAP. Consider the 11/5/91 general election for House District 77, as shown in Table 7. In this context, Willa Bazemore, black independent, lost to Thomas Forehand, white Democrat, by 5,070 votes to 5,685.

Forehand won more than 99% of the white votes cast for this office. With virtually no white crossover support, Bazemore could not prevail, although the

black community voted 88% to 12% in her favor. She lost by 600 votes, even though District 77 was 55.7% black in VAP at the time. She would have had no chance whatever in District 77 as redrawn by HB-2, which reduces its proportion black to 48.3% of the VAP. Nor would she if Dr. Lichtman's implicit suggestions for redrawing the district to some still lower proportion black were put into effect.

To be sure, after his confusing and narrow win over Eileen Olds in the Democratic primary in 1993, African American Lionell Spruill was able to win District 77 easily, and it no longer is a seat that whites seem to feel they can win. Spruill is reaping the same benefits of incumbency that Donald McEachin (black) is reaping in District 74 and Frank Hall (white) is reaping in District 69. If District 77 is redistricted to make blacks a minority in the VAP, however, whites and blacks may return to the 1991 pattern. This would be particularly likely when it next becomes an open seat.

Districts 80 and 92 are the last to be described by Dr. Lichtman. Table 4 shows that there were no black-white primaries in these districts during the last decade. In District 80, African American Ken Melvin easily defeated a white independent and a white Republican in elections analyzed in Table 6. In District 92, African American Mary Christian easily defeated a white independent in an election analyzed in Table 5. These districts behave like jurisdictions where whites do not expect to win.

District 80 was 61.1% black in VAP; the new redistricting reduces it to 55.3%. District 92 was 66.2% black in VAP; the new redistricting reduces it to 59.3%. Such reductions in % black may make these districts more competitive and are hardly evidence of packing. Moreover, when the seats become open, the advantages of incumbency will no longer flow to the black candidates, which will also make the districts more competitive.

In election after election, Table 7 shows that when white voters felt they had a chance to win, they indulged in racial bloc voting, even in these

allegedly packed majority-black districts. As a result, their candidates won or came in close in eight of eleven contests.<sup>19</sup> These actual examples, drawn from real electoral behavior in real Virginia legislative districts, show Dr. Lichtman's hypothetical example (pages 17-22) to be a fantasy. There he predicts that black candidates will win in 30% black districts, aided by simultaneous party primaries and white crossover voting. Here in the real world, we see the black community struggling and sometimes failing to elect candidates of its choice in districts that are about 56% black in VAP, owing to white voters who show high political mobilization and high racial bloc voting.

Are White Candidates the Candidates of Choice of the Black Community (Revisited)?

Tables 5 and 7 shed some light on whether white candidates in some of the uncontested "elections" in Table 4 are likely to have been the candidates of choice of the African American community, allowing us to revisit this issue. In the contests summarized in Tables 6 and 7, African Americans gave 93% of their votes to black candidates, on average. Given this proportion of racial bloc voting, it is hardly likely that black voters would have supported white candidates against black opponents in the many contests in these districts where white candidates ran unopposed. Thus Tables 6 and 7 support the analysis ventured earlier that such factors as white incumbency and Virginia's political inertia have combined to keep African Americans from electing candidates of their choice to this day in districts 69 and 75, and for many years in district 74.

Can Some Districts, Majority-Black for Years, Now Be Considered Packed?

Several of the contests shown in Table 7 and discussed above (Districts 69, 9/11/91; 70, 11/2/93; 74, 6/13/95; and 77, 11/5/91) prove that the answer

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<sup>19</sup>These totals do not include the Hall victories, District 69, 9/11/91 where we don't know the candidate of choice of each community and 11/2/95 where Hall was the candidate of choice of the black community, or the anomalous Spruill-Olds election.



to this question is no. In addition, consider what happened in District 75 on 6/8/93 and 6/10/97 and on 11/2/99 in District 90. These are not among the districts singled out by Dr. Lichtman or the complaint, but like them they are majority-black districts.

The 6/8/93 and 6/10/97 Democratic Primaries in House District 75 provided surely the most polarized elections possible. In 1993 Paul Council, white, won 96% of the white rollon, while Sherlock Holmes (!), African American, won approximately 99% of the black rollon. Even in this 57% black district, Council won 58.7% of the votes because the white VAP voted at twice the rate of the black VAP. Then in 1997, Council won approximately 99% of the white rollon, while Mauhrine Brown, African American, won approximately 99% of the black rollon. This time Council won with almost 2/3 of the votes cast; again the white VAP voted at twice the rate of the black VAP. In both contests, high levels of white political mobilization caused a 57% black VAP to translate into a black minority of actual voters at the polls. So much for the claim that districts that are 57% black might be packed! African American voters were hardly wasted in either contest.

Note again, Dr. Lichtman's claim that majority-black districts like 75 may be "under the effective political control of minorities, given that white candidates may well [sic] the candidates of choice of African American voters" (page 4, note 1). Here we have direct evidence that this claim is nonsense. In both contests, black candidates won 99% of the votes cast by the African American community, but still they lost. District 75 is "under the effective political control of" its white voters.

On 11/2/99 in District 90, Billy Robinson, black Democrat, faced Michael Ball, white Republican. Robinson had held this seat uncontested throughout the decade. Earlier in 1999 he had defeated a black opponent in the Democratic primary, but that fall he faced a serious challenge. As Table 7 shows, even with the benefit of incumbency, Robinson won just 50% of the vote, barely enough for victory. His triumph was aided by two factors:

- owing in part to party identification, Robinson was able to eliminate crossover voting by African Americans for white candidates;
- a white independent won 7.4% of the votes that would otherwise surely have gone to Ball.

In 1999 District 90 was about 58% black in VAP. Under the new plan it will be just 54% black. This 4% decrease would have made the 1999 general election quite close. Again, this district does provide the African American community with a fair opportunity to elect candidates of choice, but it can hardly be considered packed.

These additional real examples again disprove Dr. Lichtman's hypothetical example (pages 17-22). Not only do no black candidates ever win in districts less than 52% black in VAP,<sup>20</sup> in Districts 75 and 90 the black community struggles and sometimes fails to elect candidates of its choice in districts that are 57% and 58% black in VAP, again owing to white voters who show high political mobilization and high racial bloc voting.

#### What Proportion Black Is Required for a Tossup House District?

The averages in Table 7 provide the basis for this calculation. We let  $x$  = the % black in the VAP required for a tossup. Then  $(1-x)$  = the % white in the VAP required for a tossup. Using the averages from Table 7, the formula becomes:

$$.159x + .037 (1-x) = .014 x + .184 (1-x).$$

This formula equates the votes for the black candidate, on the left, to the votes for the white candidate, on the right. In words, the average proportion of the black VAP voting for the black candidate (15.9%) times the % black in the VAP ( $x$ ) plus the average proportion of the white VAP voting for the black candidate (3.7%) times the % white in the VAP ( $1-x$ ) yields the votes for the black candidate. Similarly, the proportion of the white VAP for the white candidate (18.4%) times the % white in the VAP ( $1-x$ ) plus the proportion of

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<sup>20</sup>Except for George Lovelace in 1996.

the black VAP voting for the white candidate (1.4%) times the % black in the VAP (x) yields the votes for the white candidate. Setting them equal:

$$.292x = .147; x = .503$$

We conclude, for African American voters to have a tossup chance, they must be 50.3% of the VAP at a minimum.

Would a District 49.9% Black Be Unwinnable? Would A District 55% Black Be Packed?

Of course, this analysis cannot be an exact science and a point estimate like 50.3% is not justified. We might place a band around it, analogous to the "confidence interval" in introductory statistics courses. But our confidence interval does not derive solely from the statistical process of estimating the universe of political behavior from the known sample of past elections. In politics, much depends on the qualifications, character, personality, and even appearance of the candidates, on their style and amount of campaigning, on their stance on various issues, and on their political alliances, wealth, and abilities to raise funds.

I suggest that this estimate of 50.3% should be considered a minimum for several reasons. First, except for George Lovelace once for a partial term of office in one seat, no candidate of choice of the African American community has won a seat in the Virginia legislature in the last ten years, except from districts more than 52.5% black in VAP. Second, the districts summarized in Table 7 already have black majorities ranging from 55% to 62% black in VAP, yet white candidates remain competitive. Therefore districts 55% to 62% black in VAP cannot be considered packed.

Because these districts range from 55% to 62% black in VAP, their black populations have already enjoyed a considerable "warming effect," leading to increased political mobilization. If the black proportion in the VAP in these districts were decreased toward 50.3%, some of this warming effect would be lost, decreasing the ability of black voters to elect candidates of their choice to the Virginia legislature.

Thus in politics the 50% threshold is critical. A majority white district is distinctly different, in image and hence in reality, from a majority black district, just as winning 50.1% of the vote is quite different than winning 49.9% of it.

#### How Do Black Candidates Fare in Majority-White House Districts?

We have already seen important differences in the behavior of white voters and some differences in the behavior of African American voters, based on their perceptions of the winnability of districts, all of which were majority black. We now must examine political mobilization and racial bloc voting in districts that are majority white. Table 8 shows all the black-white contests in majority-white House districts since 1991 for which I have data. The first conclusion to which Table 8 points is that black candidates have been remarkably few. Since the beginning of 1991 Virginia has held five general elections for House of Delegates; each was potentially preceded by a party primary, although party primaries have been infrequent. The Virginia House of Delegates has 100 districts, of which twelve, majority-black, have already been treated above. This leaves 88 districts, each with ten potential elections, or 880 contests where black candidates could have challenged white candidates. There have also been ten "special elections," held when someone left office before completing its term, making 890 in all.<sup>21</sup> Given all these possibilities, just 13 black candidates who were candidates of choice of the African American community ran for these seats, as listed in Table 8. In other words, African Americans challenged just 13 / 890 or 1.5% of all House District elections they might have challenged in majority-white districts. I submit this is prima facie evidence that black challengers and the African American community held out little hope of winning election in districts less than 50% African American in VAP. Although African Americans comprised about

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<sup>21</sup>This total omits Republican Party primaries, which might be expected to draw few black candidates, since the Republican Party is overwhelmingly white. Republicans have run African American nominees occasionally, as noted in earlier tables, but they have not been candidates of choice of the black community.

15% of the VAP in these majority-white house districts, they ran for office only 1.5% of the time.<sup>22</sup>

Looking at this another way, the list of candidates supplied me by the Office of the Attorney General includes a total of 1093 candidates in majority-white districts.<sup>23</sup> Of these 1093, 13 or 1.2% were African Americans who were candidates of choice of the African American community. Again, African Americans comprised about 15% of the VAP in these house districts.

The question is, given that the majority-white House Districts in Virginia are about 15% black in VAP, how likely is it that just 1.2% or 1.5% of the candidates for office in such districts have been black? Almost any social scientist would assume a null hypothesis, as we did earlier examining Dr. Lublin's compactness data. The null hypothesis is, race makes no real impact: the difference between 1.2% (or 1.5%) and 15% might have occurred by chance.

These percentages were based on large numbers. The 1.2% derived from a sample of 890, while the 15% was the proportion black in the VAP for the entire state of Virginia, not including its majority-black House Districts, a population of about 6,150,000. Common sense tells us that such a difference would therefore be unlikely due to chance. To answer the question scientifically, the social scientist uses a statistical formula called, appropriately enough, "the t-test for the significance of a difference between two percentages." We compute t according to the following formula and then look up the result in the appropriate table, available in every statistics

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<sup>22</sup>During the decade, Virginia's black population grew from 1,162,994 to 1,390,293. Approximately 480,000 African Americans lived in the twelve majority black districts treated above, leaving about 920,000 African Americans in the remaining 86 districts. Virginia's nonblack population averaged about 5,500,000 during the period, of whom about 300,000 lived in the twelve majority black districts, leaving about 5,200,000 nonblacks in the remaining 88 districts. Thus African Americans have been about 920,000 / 5,200,000 or 15% of their total population and a slightly lower proportion of their VAP.

<sup>23</sup>Some ran unopposed; I don't know why some but not all unopposed candidates were listed.

book.

$$t = p_1 - p_2 / s_{(p1 - p2)}$$

where  $p_1$  is the first percentage (here 15%) and  $p_2$  is the second percentage (1.2%).

$s_{(p1 - p2)}$  is called the "standard deviation of the difference of the two percentages." It is a measure of the variability of the percentages, and as the reader will immediately appreciate, that variability is larger when the percentage is based on fewer cases. That is, a coin might not be biased toward heads but nonetheless yield 3 heads in 4 flips (75%), while 100 flips would not be likely to yield 75 heads. Here, based on samples of 890 and 6,150,000,  $s_{(p1 - p2)}$  turns out to be .017, or about 1.7%. We then compare the actual percentage difference, 15% - 1.2% or 13.8%, with 1.7% to find  $t$ .

$$t = .138 / .017 \text{ or } 8.1.$$

When we look up  $t = 8.1$  on a  $t$ -table, we learn that such a large difference almost never occurs due to chance – less than one time in a million!

In short, the results are "highly significant": the probability that such a difference might be due to chance is vanishingly small. The other difference – 15% vs. 1.5% – is obviously also highly significant statistically. Therefore we must reject the null hypothesis and conclude instead that race did make a difference in running for office: blacks ran significantly less often than whites. Race was involved, or perhaps fear of failure based on race, since the overwhelming majority of black candidates lost in these majority-white districts.

Table 8: Election History, Black-White Contests, Majority-White House Districts.

<u>Dist.</u>	<u>Date</u>	<u>Candidate</u>	<u>Race</u>	<u>Party</u>	<u>Result</u>
11	11/5/91	Hodge-Muse*	B	R	Lost to W D
17	11/2/95	Artis*	B	R	Lost to W D
23	11/2/93	Cobbs	B	D	Lost to W R
23	11/2/95	Cobbs	B	D	Lost to W R
26	11/2/95	Hudson	B	D	Lost to W R
35	12/17/96	Lovelace	B	D	Defeated W R, W I
35	6/10/97	Lovelace	B	D	uncontested
35	11/4/97	Lovelace	B	D	Lost to W R
35	6/8/99	Lovelace	B	D	uncontested
35	11/2/99	Lovelace	B	D	Lost to W R
58	6/10/97	Harris*	B	R	Defeated W R
58	11/4/97	Harris*	B	R	Defeated W D
58	11/2/99	Harris*	B	R	Defeated W D
61	11/2/93	Green	B	I	Lost to W R
62	11/2/95	Brown	B	D	Lost to W R
91	11/2/93	Safavinia**	B	I	Lost to W D, et al.
93	11/5/91	Jordan	B	D	Lost to W R
93	11/2/93	Sharpe	B	D	Lost to W R
93	11/2/95	Sharpe	B	D	Lost to W R

\*Black Republicans not the candidate of choice of the black community. Analogous to white-white contest; not analyzed here.

\*\*Trivial candidate not the candidate of choice of the black community.

Closer inspection of Table 8 reveals another difference: just two of the 13 black candidates who were candidates of choice of the black community ever ran unopposed – George Lovelace in two Democratic primaries. Eleven of 13, or 85%, faced opposition. Only 690 of the 1159 white candidates, or 59%, faced opposition. This difference is also statistically significant, at better than the .05 level, meaning such a result could occur by chance less than five times in a hundred trials. The white community may feel a greater need to oppose black candidates, or white candidates may simply feel that black candidates in majority white districts are more vulnerable. The latter conclusion is reasonable, since except for George Lovelace, every black candidate who was the candidate of choice of the African American community lost.<sup>24</sup> Either way, race predicts likelihood of opposition.

#### How Does Political Behavior Differ in Majority-White House Districts?

Table 9 summarizes the voting behavior of the black and white communities

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<sup>24</sup>George Lovelace won a short term in 12/17/96 and won subsequent Democratic nominations but never won a full term in House District 35.



for all the black-white contests for which I have data. The average white candidate won easily, getting 65% of the votes.<sup>25</sup> White voting was polarized, with 31.4% of the white VAP voting for white candidates, 9.5% voting for black candidates. Black voting was also polarized: 26.5% of the black VAP voted for black candidates while 6.4% voted for white candidates.

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<sup>25</sup> Averages do not include black Republicans who were not candidates of choice of the black community and whose elections are therefore analogous to white-white contests.

Table 9: Analysis of Black-White Contests, Majority-White House Districts.

Dist.	Date	Candidate Party	Race	Votes	% of Votes	% BVAP	%W->W	%W->B	%B->W	%B->B
11	11/5/91	N. Hodge-Muse*	B R	3828	23.1	28%				
	Ward Armstrong		W D	12745	76.8					
17	11/2/95	Jeff Artis*	B R	3447	24.9	3				
	Vic Thomas	W	D	10382	75.1					
23	11/2/93	Gilliam Cobbs	B D	7085	40.4	25		11.2		27.4
	Steve Newman	W	R	10433	59.5		32.2		2.	
23	11/2/95	Gilliam Cobbs	B D	7820	47.6	25		12.6		27.9
	Preston Bryant	W	R	8597	52.3		35.		0.	
26	11/2/95	Gerald Hudson	B D	5713	36.1	3		11.8		**
	G. Weatherholtz	W	R	10120	63.9		29.5		**	
35	12/17/96	George Lovelace	B D	3415	50.9	4		6.7		**
	M. Polychrones	W	R	3009	44.8		7.7		**	
	(also trivial W I)									
35	11/4/97	George Lovelace	B D	10202	46.6	4		20.8		**
	J. Devolites	W	R	11233	51.3		27.0		**	
	(also trivial W I)									
35	11/2/99	George Lovelace	B D	6599	39.9	4		14.8		**
	J. Devolites	W	R	9928	60.0		25.7		**	
58	6/10/97	Paul Harris*	B R	2094	72.0	9	Data not available.			
	(Repub.Pri.) Paul Wright	W	R	808	28.0					
58	11/4/97	Paul Harris*	B R	14244	62.4	9				
	Bruce Kirtley	W	D	8561	37.5					
58	11/2/99	Paul Harris*	B R	12036	58.9	9				
	Edward Wayland	W	D	8407	41.1					
61	11/2/93	Jack Green	B I	3041	16.1	35		0.		20.9
	Lewis Parker	W	D	7330	38.8		18.6		9.3	
	Frank Ruff	W	R	8506	45.1		29.7		0.	
62	11/2/95	Del Brown	B D	4147	25.7	18		3.5		
	Riley Ingram	W	R	11981	74.3		31.2		20.3	
93	11/5/91	Lester Jordan	B D	1949	26.1	19		6.5		**
	Phillip Hamilton	W	R	5523	73.9		29.9		**	
93	11/2/93	Mary Sharpe	B D	3088	25.3	23		10.0		**
	Phillip Hamilton	W	R	9139	74.7		39.5		**	
93	11/2/95	Mary Sharpe	B D	3002	30.0	23		12.1		**
	Phillip Hamilton	W	R	6995	70.0		32.5		**	
Average, black candidate:					35.0%	16%		10.0%		25.4%
Average, white candidate:					65.0%		30.8%		7.4%	

\*Black Republican not the candidate of choice of the black community. Analogous to white-white contest; not analyzed here.

\*\*Black voting cannot be estimated in this district.

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What Proportion Black Is Required for a Tossup House District, Given the

Political Behavior in Majority White Districts?

The averages in Table 9 provide the basis for this calculation. Again, let  $x$  = the % black in the VAP required for a tossup, and  $(1-x)$  = the % white in the VAP required for a tossup. Using the averages from Table 9, the formula becomes:

$$.254x + .1 (1-x) = .074 x + .308 (1-x).$$

Again, votes for the black candidate are on the left, equated to votes for the white candidate, on the right. Solving:

$$.39x = .208; x = .536.$$

We conclude, for African American voters to have a tossup chance, they must be 53.6% of the VAP. This result confirms the result based on Table 7, analysis in majority-black districts where whites might hope to win. There, for African American voters to have a tossup chance, they must be 50.3% of the VAP at a minimum. Of course, in these majority-white districts African Americans comprised less than 53.6% of the VAP. That explains why, of the 11 African Americans who were candidates of choice of the African American community and faced opposition, 10 lost.

Does HB-2 Give the Black Community a Fair Chance to Elect Candidates of their Choice?

Comparing the Democratic proposal for House redistricting, HB-2, to this standard derived from Table 9, 53.6%, we conclude that their plans for District 69 (48.5% black in VAP), 71 (50.5%), 75 (50.1%), 77 (48.3%), 80 (50.5%), 88 (51.7%), 90 (47.7%), and 92 (52.8% black) do not measure up. None of these eight districts provides the African American community with a 50/50 chance to elect candidates of its choice. Dr. Lichtman's suggestion (pages 16-22) that districts as low as 30% black in VAP might provide the African American community with a reasonable chance to elect candidates of its choice is also disproved.

Can White Crossover Votes Ensure that the Black Community Can Elect Candidates of Choice to the House of Delegates?

Obviously, a strong candidate of choice of the black community might win any of these twelve seats if s/he can win an appreciable proportion of white crossover votes. After all, Douglas Wilder won the lieutenant governorship and governorship of the state of Virginia, a "district" much lower than 53.6% black in VAP. However, Doug Wilder was very unusual. Paul Goldman, former chair of the Democratic Party in Virginia, made this point recently in a Washington Post op-ed piece. Writing about Wilder's campaigns, which he managed, "He won a couple of amazing upsets in Virginia – for lieutenant governor and then governor. I am only now beginning to appreciate the magnitude of what he achieved." Goldman went on to say, "He was always, in my eyes, the most amazingly skilled and engaging politician of his generation in Virginia, tough as nails and yet smooth as silk. He looked the part of a top elected official. (His opponent ... did not.)"

Dr. Lichtman's hypothetical examples in both reports (House report pages 19-22 and Senate report pages 15-20) rely on white crossover voting, particularly in general elections, for black candidates or candidates of choice of the black community to have a chance of success. Paul Goldman pointed out that this is indeed possible; indeed, Douglas Wilder won more than 40% of the white vote. But Wilder was unique; Goldman states that his winning such white support was "the first time this had been done by a black candidate in the South." However, Goldman concluded pessimistically: "But now I get the sinking feeling it has all come to naught." Goldman's pessimism derives from results like those in Table 9. "Unfortunately, the phenomenon of what political scientists call 'racial bloc voting' is still with us," he concluded. "It's discouraging." Goldman went on to hope that this will change, but he noted that thus far, "An African American candidate, try as he or she might, is still seen as a black man or woman first and foremost."<sup>26</sup>

Given this situation, as shown by the results in Tables 7 and 9, it is

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<sup>26</sup>Paul Goldman, "Getting Race Out Of the Races," Washington Post, June 23, 2001, A25.

not reasonable to draw districts that virtually require black candidates to win considerable white crossover support for victory. Superstar African American candidates like Wilder can accomplish this feat, and Dr. Lichtman resorts to using his apparent analysis of Wilder's 1989 gubernatorial triumph to bolster his case (House report page 22; Senate report page 20). But sometimes, the African American community may support a candidate whom the white community abhors, and vice versa. Perhaps the black candidate makes a point of campaigning on issues of concern to the African American community – and often issue differences do divide the two communities.<sup>27</sup> In such cases, elections will be polarized; Tables 7 and 9 abound with examples.

By definition, districts that require reliance on white crossover vote do not provide the African American community with a reasonable opportunity to elect candidates of its choice. By definition, reliance on white crossover for electability means requiring the black community to support candidates attractive to white voters. This is simply not always possible in highly polarized situations, and polarized voting marks contests for the Virginia state legislature, as shown in Tables 7 and 9. Again, the general conclusion from these data must be, when racial polarization obtains, districts with the proportions of Districts 69, 71, 75, 77, 80, 88, 90, and 92 in the HB-2 plan do not provide the black community with a reasonable chance to elect candidates of its choice. Districts with the still lower proportions urged by Dr. Lichtman are out of the realm of reasonable probability, which is why so few African American candidates have even bothered to run in them.

Do Recent Election Results In Majority-Black Districts Indicate Packing in SB-1?

Turning now to the Virginia Senate, again, the "Bill of Complaint" filed by Douglas West, et al., charges that

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<sup>27</sup>For example, a majority of African Americans in a district may rent their homes, while most whites may own theirs. A tenants' rights bill may be perceived as benefiting blacks at the expense of whites, and vice versa for a landlords' rights measure.

the Senate leadership similarly intended to divide voters along racial lines, and also did so by "packing" minorities into bizarrely-shaped districts the boundaries of which are defined by race and not traditional districting principles.

The new (SB-1) Senate districts range from 55.0% to 58.5% black in VAP and average 56.2% black. Again these districts show lower concentrations of African Americans than the districts they replaced and show smaller deviations from that average. As with the House districts, it is hard to imagine how districts with these percentages might give rise to the charge of "packing of minorities." Again, "packing" is usually reserved for districts with much higher proportions of potential black voters.

To evaluate the claim that the five majority-black Senate districts in SB-1, averaging just 56.2% black in VAP, might "pack" black voters, let us examine the results of all black-white contests for the Virginia Senate over the last ten years. Our analysis will show that it was not the Senate leadership that "divide[d] voters along racial lines," but voters themselves, in their political mobilization and racial bloc voting. Given this polarized voting, the Senate districts proposed in SB-1 do not constitute examples of packing.

Table 10: Election History, Majority-Black Senate Districts.

<u>Dist.</u>	<u>Date</u>	<u>Candidate</u>	<u>Race</u>	<u>Party</u>	<u>Results</u>
2	11/5/91	Bobby Scott	B	D	unopposed
2	12/15/92	Bobby Scott	B	D	Defeated W R, B I, trivial W
2	11/7/95	Henry Maxwell	B	D	unopposed
2	11/2/99	Henry Maxwell	B	D	Defeated W R
5	11/5/91	Yvonne Miller	B	D	Defeated W R, trivial W
5	11/7/95	Yvonne Miller	B	D	Defeated W R
5	11/2/99	Yvonne Miller	B	D	unopposed
9	11/5/91	Benj. Lambert	B	D	unopposed
9	11/2/99	Benj. Lambert	B	D	unopposed
16	9/11/91	Henry Marsh	B	D	Defeated 6 W D
16	11/7/95	Henry Marsh	B	D	unopposed
16	11/2/99	Henry Marsh	B	D	unopposed
18	11/7/95	Louise Lucas	B	D	Defeated W I
18	11/2/99	Louise Lucas	B	D	unopposed

Table 10 shows the election history for the last decade in the five majority-black districts. Unlike many of the House Districts, each Senate District has elected African Americans, often unopposed.

Table 11 tells more about those contested elections that did occur. But the averages at the bottom of Table 11 obscure more than they reveal. In no district was the proportion of the white VAP voting for the white candidate close to 21.3%.



Table 11: Analysis of Black-White Contests, Majority-Black Senate Districts.

Dist.	Date	Candidate Party	Race	Votes	% of Votes	% BVAP	%W->W	%W->B	%B->W	%B->B
2	12/15/92	Henry Maxwell	B D	6695	39.1%	54%	No data available.			
		Jessie Rattley	B I	4242	25.0%					
		Jim West W	R	5388	31.5%					
		Joyce HobsonW	I	779	(I omit this trivial candidate.)					
2	11/2/99	Henry Maxwell	B D	14545	80.1	54%		9.4%*		
		Michael Rogers	W R	3475	19.1		7.2%		0.6%	
5	11/5/91	Yvonne Miller	B D	12102	75.5%	55%		5.1		15.2
		Pat Clay W	R	3237	20.2		7.0		0.	
5	11/7/95	Yvonne Miller	B D	18658	76.7	55%		10.6		24.7
		Bruce A. Wilcos	W R	5673	23.3		15.5		0.	
16	11/5/91	Henry Marsh	B D	13982	60.1	56%		6.6		18.5
		Dan Harrington	B R	5211	22.4		16.4**		0.**	
		John Holden W	I	4061	17.5		10.4		0.	
18	11/5/91	Louise Lucas	B D	18859	51.9	56%		3.2		28.5
		Frank Ruff W	R	17493	48.1		36.7		0.9	
18	11/7/95	Louise Lucas	B D	23247	58.4	56%		3.5		35.7
		F.M. SlaytonW	I	16534	41.6		34.7		2.2	
Average black candidate:					66.7%	55%		6.4%		23.6%
Average white candidate:					32.0%		21.3%		0.6%	

\*Maxwell wins a higher proportion of white votes than his white opponent, hence is the candidate of choice of the white community. However, I leave him in this column because he was the strong candidate of choice of the black community; showing his white support as crossover voting is intuitively clearer.

\*\*Harrington was the candidate of choice of the white community and not of the black community.

Instead, two different patterns stand out in Table 10, just as they did in Assembly contests. In Senate Districts 2, 5, and 16, 7.2%, 7.0%, 15.5%, and 10.4% of the white VAP voted for white candidates (along with 16.4% for a black Republican candidate in District 16). In District 18, on the other hand, roughly 35% of the white VAP turned out and voted for white candidates.

The contests in districts 2, 5, and 16 showed political mobilization and racial bloc voting along the lines of those House of Delegates contests where whites did not expect to win as shown in Table 6. In District 18 the white VAP showed the mobilization and racial bloc voting that mark Virginia white voters' behavior in elections where they do hope to win, whether in majority-black or majority-white districts.

Accordingly, I will reprint the results of these two District 18 contests in the next table, along with the only major black-white contest for the Virginia Senate in a majority-white district in the decade.

Table 12: Analysis of Black-White Contests in Senate Districts Where Whites Hoped to Win.

<u>Date</u>	<u>Candidate</u>	<u>Race</u>	<u>Party</u>	<u>Votes</u>	<u>% of Votes</u>	<u>% BVAP</u>	<u>%W-&gt;W</u>	<u>%W-&gt;B</u>	<u>%B-&gt;W</u>	<u>%B-&gt;B</u>
11/7/95	Joyce E. Glaise	B	D	11302	29.2	38%		4.0		27.3
	Charles R. Hawkins	W	R	27350	70.8		29.9		4.1	
11/5/91	Louise Lucas	B	D	18859	51.9	56%		3.2		28.5
	Frank Ruff	W	R	17493	48.1		36.7		0.9	
11/7/95	Louise Lucas	B	D	23247	58.4	56%		3.5		35.7
	F.M. Slayton	W	I	16534	41.6		34.7		2.2	
Average black candidate:					46.5%	50%		3.6%		
30.5%										
Average white candidate:					53.5%		33.8%		2.4%	

Joyce Glaise in Senate District 19 was the only African American who has bothered to run in any Senate district less than 50% black in the last ten years.<sup>28</sup> Obviously the African American community thinks little of its chances to elect candidates of its choice in such districts. Moreover, the outcome of this lone major black-white contest in "influence districts" shows that the black community is wise to avoid trying to elect candidates in such districts.

Glaise fared poorly in her 11/7/95 general election run, losing overwhelmingly to Charles Hawkins, the white Republican. As Table 12 shows, this election was marked by overwhelming and symmetrical racial bloc voting: Glaise won 87% of the black rollon while Hawkins won 88% of the white rollon.<sup>29</sup>

In such a situation, being in an "influence district" with a fairly high

<sup>28</sup>I omit Lorene Marable-Safavinia in District 1 in 1991, a trivial black candidate who won just 2.6% of the votes cast. Including trivial black candidates would unfairly strengthen my conclusions by increasing white racial bloc voting, since such candidates drew very few white crossover votes, and by decreasing black political mobilization, since such candidates drew very few votes from the black community. Trivial black candidates are not candidates of choice of the black community and should be ignored.

<sup>29</sup>Again, the calculation is, for Glaise for example,  $27.3 / (27.3 + 4.1) = 86.94\%$ .

proportion of African Americans in the VAP was of little use. Glaise received just 29% of the votes, somewhat less than the proportion of African Americans in the VAP (38%) of her Senate district.

Table 12 lists the three black-white contests for Senate where whites had some reasonable hope to win. White voters responded with high political mobilization – higher than the political mobilization in the black community in the same contests, and much higher than the political mobilization the white community demonstrated in Districts 2, 5, and 16 where whites had little realistic expectation of winning. In Table 12, 37.4% of the white VAP cast valid votes for Senate, compared to just 32.9% of the black VAP. On average, more than 90% of the white rollon voted for white candidates. Black voting was even more polarized: almost 93% of the black rollon voted for black candidates.

What Proportion Black Is Required for a Tossup Senate District When Whites Have Hopes of Victory?

The averages in Table 12 provide the basis for calculating the percentage black required in the VAP for the African American community to have an equal chance to elect candidates of their choice. Again, let  $x$  = the % black in the VAP required for a tossup, and  $(1-x)$  = the % white in the VAP. Using the averages from Table 12, the formula becomes:

$$.305x + .036 (1-x) = .024 x + .338 (1-x).$$

Again, this formula equates the votes for the black candidate, on the left, to the votes for the white candidate, on the right. Solving,

$$.583x = .302; x = .518.$$

We conclude, for black voters to have a tossup chance, they must be 51.8% of the VAP. This conclusion closely parallels the finding for Assembly districts of 53.6% based on Table 9.

Again, a point estimate like 51.8% is not justified. Again, we can imagine a band around it, and again, it is central that we do not allow the proportion black in VAP to slip below about 51% black in VAP, lest the

district cease to be perceived and defined as "majority black." In the Democrats' SB-4 redistricting plan, Districts 2, 5, and 18 are all below 51.8%. They do not provide African American voters with an equal or tossup chance to elect candidates of their choice, so long as voters behave as they did in Table 12, which means so long as white voters believe they have hope of victory. And note that in the elections summarized in Table 12, the African American community is already highly mobilized: almost 93% of the votes cast by black voters went to black candidates. It is unrealistic to expect this proportion to increase appreciably. Yet even with this high racial bloc voting, African Americans still need to be 51.8% of the VAP to have a fair chance to elect someone.

In the SB-4 plan, Districts 5 and 18 are not even majority-black in VAP. As Table 12 shows, only once did any significant black candidate even bother to challenge for seats that are minority-black, and her attempt was futile. In this context, creating additional influence districts, 20%-50% black, is not meaningful politically. Again, Dr. Lichtman's hypothetical example (Senate report pages 16-20), claiming that Senate District 13 might elect a candidate of choice of the black community if only it were restored to 29.5% black in its VAP, rather than decreased to 24.4%, is clearly disproved in the real world. The alleged packing of African Americans does not deprive black voters of even a single additional Senate district that they would have any reasonable chance to win.

#### Do the Proposed Legislative Redistricting Plans Show Sexism?

The complaint claims "discriminat[ion] on the basis of gender against woman members." The basis of this claim is that "5 of 23 female incumbents were paired [with other incumbents] (22%); but just 18 of the 117 men were paired (15%)." Obviously it is time for another significance test, using the now-familiar t-test for the significance of a difference between two percentages. The social scientist must answer the by-now familiar question: is this difference (22% vs. 15%) likely due to chance (the null hypothesis), or did sex/gender make a difference in deciding which incumbents would get

paired (the alternative hypothesis)?

The percentages here do not seem very different – 22% versus 15%. It is as if a person rolled a die 117 times and got a six 18 times (15%), and then rolled another die 23 times and got a six 5 times (22%). Would the person then be justified in claiming that the second die was biased, compared to the first?

Using the t-test for the significance of a difference between two percentages, we compute t according to the following formula and then look up the result in the appropriate table, available in every statistics book.

$$t = p_1 - p_2 / s_{(p1 - p2)}$$

where  $p_1$  is the first percentage (here 22%) and  $p_2$  is the second percentage (15%). Based on samples of 23 and 117,  $s_{(p1 - p2)}$  turns out to be .0925, or about 9%. Immediately we see that the difference of the two percentages (22% - 15% or 7%) is smaller, so  $t = .07 / .0925$  or .75. When we look up  $t = .75$  on a t-table, we learn that such a difference might indeed happen due to chance quite often – about 45 times in 100.

Such a small differential offers no proof whatever of gender discrimination. To conclude that gender discrimination was a factor would be based on too few cases and too small a difference, just like deciding that a coin was biased after getting 3 heads in 4 flips. In the proposed plans, CH-1 and SB-1, the difference by sex in % of incumbents who are paired is statistically insignificant. The plans do not show sexism.

#### Are CH-1 and SB-1 "Segregative"?

I cannot close without noting the complaint's inaccurate and inappropriate use of "segregated" and "segregative" to describe the majority-black House and Senate districts that are preserved (not created, since they pre-existed) by the new House and Senate plans. Districts like House District 74, 59.7% black in VAP, are less "segregated" than ones like House District 1, 0.8% black in VAP! White voters living within House District 74 are free to

organize and vote for candidates of their choice of any race. The same is true for those few black voters who live in House District 1, to be sure, but the success rate of white candidates in majority black House Districts, as shown in Table 4, far exceeds the success rate of black candidates in majority white House Districts.

Moreover, this entire terminology is misguided, because it is the Virginia legislature that formerly was segregated. Before the Voting Rights Act of 1965 and before the creation of majority-black districts, the Virginia House and Senate were all-white, even though the state was about 20% black. The retention of majority-black districts in CH-1 and SB-1 is therefore integrative, not segregative, for the legislature.

In their "Memorandum in Support of Plaintiffs' Motion for Temporary Injunction," plaintiffs state (page 6):

Plaintiffs fully favor government efforts to assist historically disadvantaged voting communities to realize their rights to full and equal representation, and we acknowledge that a state therefore may, for example, draw districts where candidates preferred by the minority community are likely to win. . . And we firmly believe the Commonwealth is compelled by § 5 of the Voting Rights Act to create at least twelve such districts here.

Dr. Lichtman's implicit suggestions throughout pages 4-15 of his House report and pages 3-14 of his Senate report are in direct conflict with the above paragraph. He would redraw seven of these districts to make them far harder for African American candidates to win. The Democratic plans alluded to in the complaint also draw districts where candidates preferred by the minority community are less likely to win, indeed, unlikely to win when they again become open seats.

If the Democrats' alternative plans, HB-2 and SB-4, are adopted, the

African American community will face uphill battles to elect candidates of choice in eight House Districts (69, 71, 75, 77, 80, 88, 90, and 92) and three Senate Districts (2, 5, and 18). If whites manage to elect candidates of their choice in these districts, at once or gradually as black incumbents one by one retire, then the Virginia legislature will become more and more segregated, not integrated, by the adoption of HB-2 and SB-4.

If House Districts 63, 69, 70, 74, 77, 80, and 92 are redrawn as implicitly suggested by Allan Lichtman (House Report, pages 6-15), adding in the heavily white precincts that he notes border them, then this resegregation will take place all the faster. If Senate Districts 2, 5, 9, 16, and 18 are redrawn as implicitly suggested by Lichtman's Senate report (pages 4-14), adding in the heavily white precincts that he notes border them, then the Virginia Senate will likewise resegregate quite rapidly. And all of this for a hypothetical advantage in influence districts that this report shows to be illusory in the real world!



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